

United States Marine Corps
Concepts & Issues

99

Winning in the 21st Century



United States Marine Corps
Concepts & Issues

99

Winning in
the 21st Century



Table of Contents

CMC INTRODUCTION

The Marine Corps – The Premier Crisis Response Force	vi
--	----

CHAPTER I: *Institutionalizing Innovation*

Emerging Security Challenges – Instability and Chaos	13
Naval Expeditionary Forces – Full Spectrum Assets	14
Unique Marine Corps Contributions	17
Reserve Integration	21
Transforming the Corps	22
Vision	22
Experimentation and Innovation	23
The Nation's Premier Crisis Response Force	29

CHAPTER II: *Concepts and Issues*

Operational Maneuver from the Sea	32
Other Supporting Concepts	34
Beyond C2 – A Concept for Comprehensive Command and Coordination of the MAGTF	37
Joint Concept for Non-Lethal Weapons	38
Revolution in Military Affairs	39
Power Projection Capabilities	40
Marine Tactical Aviation	42
Marine Corps Aviation Modernization	43
MV-22 Osprey	46
Joint Strike Fighter	47
Marine Helicopter Recapitalization	49
Marine Corps Aviation Precision Weapons	51
Advanced Amphibious Assault Vehicle	52
Amphibious Shipping	53
SAN ANTONIO Class Landing Assault Ship	54
Maritime Prepositioning Force	55
Mine Warfare	56
Naval Surface Fire Support	57
Marine Corps Warfighting Laboratory	58
Intelligence, Surveillance, and Reconnaissance	60
Chemical/Biological Incident Response Force	62
Technology Assessment and Development	64
Modeling and Simulation	65
Marine Corps Readiness	66
Making Marines – Transformation	68
Recruiting	70

Gender Segregated/Integrated Training	71
Quality of Life	73
Marine Corps Total Force.....	75
Marine Corps Security Forces	77
Marine Corps Infrastructure	78
Precision Logistics.....	82
Business Practice Reform	83

CHAPTER III: *Current Operations*

Current Operations	88
Exercises	88
CY98 USMC Operations Matrix.....	90
Counterdrug Operations	92
Military Support to Civil Authority.....	92
CY98 USMC Domestic Support Matrix.....	93

CHAPTER IV: *Major Acquisition Programs*

PART 1: Command Element Programs 96

MAGTF C4I

Global Command and Control System (GCCS).....	98
---	----

MANEUVER

Tactical Combat Operations (TCO) System.....	99
Digital Technical Control (DTC)	100
Tactical Data Network (TDN) System.....	101

INTELLIGENCE

Intelligence Analysis System (IAS)	102
Manpack Secondary Imagery Dissemination System (MANPACK SIDS)	103
Radio Reconnaissance Equipment Program - SIGINT Suite - 1 (RREP-SS-1)	104
Team Portable Collection System (TPCS) Upgrade	105
Mobile Electronic Warfare Support System (MEWSS) Product Improvement Program (PIP)	106
Topographic Production Capability (TPC)	107
Joint Service Imagery Processing System Tactical Exploitation Group (JSIPS TEG)	108

AIR OPERATIONS

Common Aviation Command and Control System (CAC2S).....	109
Air Defense Communications Platform (ADCP).....	110
Improved Direct Air Support Central (IDASC) Product Improvement Program (PIP)	111
Tactical Air Operations Center (TAOC)	112
Cooperative Engagement Capability (CEC)	114
Theater Battle Management Core Systems (TBMCS)	115

Expeditionary Air Traffic Control (ATC).....	116
FIRE SUPPORT	
Advanced Field Artillery Tactical Data System (AFATDS)	117
Target Location, Designation and Hand-Off System (TLDHS)	118
COMMUNICATIONS AND COMMUNICATIONS SUPPORT	
Data Automated Communications Terminal (DACT).....	119
Super High Frequency (SHF) Tri-Band Advanced Range Extension- Terminal (STAR-T)	120
Secure Mobile Anti-Jam Reliable Tactical-Terminal (SMART-T)	121
Enhanced Position Location Reporting System (EPLRS).....	122
Base Telecommunications Infrastructure (BTI) Program	123
Marine Corps Enterprise Network (MCEN)	124
PART 2: Ground Combat Element Programs	126
MOBILITY	
Advanced Amphibious Assault Vehicle (AAAV) Program	127
Armored Vehicle Drivers' Thermal Viewer (AVDTV)	128
"Grizzly" Combat Breacher Vehicle (CBV)	129
Assault Amphibious Vehicle (AAV) Reliability-Availability- Maintainability/Rebuild to Standard (RAM/RS) Program	130
FIREPOWER	
Lightweight 155mm Howitzer (LW155).....	131
Javelin	132
Predator.....	133
Anti-Armor Weapon System-Heavy (AAWS-H).....	134
Anti-Personnel Obstacle Breaching System (APOBS)	135
AN/PAS-13 Thermal Weapons Sight (TWS).....	136
LAV Service Life Extension Program (LAV-SLEP).....	137
LAV Enhanced Fire Support Platform (LAV-EFSP).....	138
LAV Command and Control (LAV-C2) Modification	139
PART 3: Aviation Combat Element Programs	138
AERIAL RECONNAISSANCE	
Vertical Takeoff and Landing (VTOL) Unmanned Aerial Vehicle (UAV).....	141
ASSAULT SUPPORT	
MV-22 Osprey	142
H-1 Upgrade (4BN/4BW) Program.....	144
KC-130J	146
OFFENSIVE AIR SUPPORT	
AV-8B Harrier Remanufacture (Reman)	147
F/A-18C/D Hornet.....	148
STOVL Joint Strike Fighter (JSF).....	149

PART 4: Combat Service Support Element Program ..	150
Medium Tactical Vehicle Replacement (MTVR) Program	150
Light Tactical Vehicle Replacement (LTVR) Program.....	152
Third Echelon Test Systems (TETS).....	153
1500 Gallon per Hour (GPH) Reverse Osmosis Water Purification Unit (ROWPU).....	154
Marine Air-Ground Task Force (MAGTF) Logistics Automated Information Systems (LOGAIS).....	155
Logistics Vehicle System Replacement (LVSF) Program	157
Military Motorcycle Replacement Program.....	158
PART 5: Other Support to the MAGTF	160
Nuclear, Biological and Chemical (NBC) Defense Program.....	160
Chemical/Biological Incident Response Force (CBIRF).....	161
Non-Lethal Weapons (NLW) Capability Set.....	162
Truck, Firefighting, Aircraft Crash and Structure Fire, A/S32P-19A (P-19A) Rebuild Program.....	163
Training Systems and Devices	164
Distance Learning (DL) Program	169
Joint Service Light Nuclear, Biological and Chemical Reconnaissance System (JSLNBCRS).....	170
Joint Service Lightweight Integrated Suit Technology (JSLIST).....	171
Joint Biological Point Detection System (JBPD)	172
Small Unit Biological Detector (SUBD)	173
Joint Warning and Reporting Network (JWARN) Program.....	174
Joint Services Lightweight Standoff Chemical Agent Detector (JSLSCAD)	176
Automatic Chemical Agent Detector Alarm (ACADA).....	177
Joint Service Fixed Site Decontamination (JSFXD) Program	178
Advanced Ground Laser Eye Protection (AGLEP).....	179
SAN ANTONIO Class LPD 17	180
Joint Military Intelligence Program (JMIP)	181
National Foreign Intelligence Program (NFIP).....	182
CHAPTER V: Fiscal Resource Overview	
Fiscal Resources	187
Figure 5-1 Budget Authority	188
Figure 5-2 DoD Budget Authority Trend (\$B).....	188
Figure 5-3 Budget Trends	189
Figure 5-4 Service Comparison of TOA in FY00 DoD Budget (FYDP \$B).....	189
Figure 5-5 DoD FY00 TOA Shares	190

Appropriations 190

 Figure 5-6 Marine Corps TOA (FYDP \$M) 192

 Figure 5-7 Total Obligational Authority (FY00 Constant Dollars) 193

USMC FY00 TOA by Appropriation..... 193

 Figure 5-8 USMC FY00 by Appropriation 194

 Figure 5-9 Military Personnel FY00 Budget (FYDP \$M) 195

 Figure 5-10 Operation and Maintenance by Major Activity..... 196

 Figure 5-11 Procurement Marine Corps Dollars
 (FY00 Constant Dollars) 198

 Figure 5-12 Marine Corps Procurement (FY00) by Budget Activity
 (FYDP \$M)..... 199

 Figure 5-13 Marine Corps RDT&E, N to Support Ground Equipment
 (FYDP \$M)..... 199

Summary 201

APPENDIX A: *How the Marines are Organized*

Headquarters Marine Corps..... 202

Operating Forces 202

 Figure A-1 Marine Air-Ground Task Force..... 206

 Figure A-2 World Map Showing Location of MEFs, MPSs &
 MARFORs 207

Reserves 210

Supporting Establishment 211

 Figure A-3 Marine Corps Total Force 211

APPENDIX B: *Abbreviations & Acronyms*

The Marine Corps - The Premier Crisis Response Force

The Marine Corps most important responsibilities are making Marines and winning our Nation's battles. We exist because the American people and the Congress expect their Marines to provide a ready and professional fighting force that guarantees success when committed against uncertain challenges. Today, we provide such a force. But good as we are today, the Marine Corps is dedicated to being better tomorrow. Innovation, ingenuity, and a willingness to adapt to changes on the emerging battlefield will take the Marine Corps into the 21st Century as the world's premier crisis response force. This was the intent of the 82nd Congress and continues today to be the Corps primary focus.



This role is more relevant than ever before. Once stable nation states are imploding... ripped by internal struggles and long suppressed animosities. Ethnic hatred, religious strife, and clan warfare serve as tinder for transnational movements. Coupled with this, is a radical shift in world demographics, economic output, and technological diffusion. These trends suggest a greater degree of general instability -- a time of asymmetry, uncertainty, and chaos.

Forward-deployed naval forces are uniquely suited to these challenges. They possess a credible ability to deliver the appropriate level of assistance or force as required. The Navy and Marine Corps Team provides the most responsive, cost-effective and capable force to respond as the National Command Authority sees fit. It is the means by which this Nation can shape today's security environment.

To prevail in the future, the United States must field an agile and adaptable Marine Corps. The 17th edition of Concepts and Issues details

our commitment to building such a force. It explains our concept for projecting decisive power and influence in the 21st Century - Operational Maneuver From The Sea; our institutional commitment to innovation; and most importantly, how we are enhancing the individual Marine.

Development of these future capabilities requires investment. In compliance with its mandate, the Marine Corps dedicated the preponderance of its resources to its primary mission -- service as a force-in-readiness. This has come at the expense of future modernization, the future readiness of the Corps; as well as many quality of life programs and funding for the infrastructures at our bases and stations. These decisions were forced by more than a decade of steadily declining defense resources. Recognition of the operational consequences of this trend has reversed the decline and has resulted in a significant increase in the defense topline of the FY00-05 President's Budget.

Clearly, these needed resources will halt the process of mortgaging the health of today's Corps at the expense of tomorrow's wellness and will assure that your Marine Corps, your 911 Force, will continue to effectively answer the Nation's call. Future operational trends, however, promise only increased crisis demands for our Corps in the next century. To successfully meet these challenges, the Marine Corps will need continued and sustained support for its modernization program for it to remain most ready when the Nation is least ready -- the Nation's force of choice.

A handwritten signature in black ink, reading "C.C. Krulak". The signature is stylized with a large, sweeping "L" at the end.

Charles C. Krulak
General, U.S. Marine Corps
Commandant of the Marine Corps

Concept



Chapter

Institutionalizing Innovation

After nearly two centuries of service on “distant station patrols” with the U.S. Navy, as a forward deployed, crisis response force, the role of the Marine Corps was formally articulated by the 82nd Congress:

Issues

Chapter I

Institutionalizing Innovation

After nearly two centuries of service on "distant station patrols" with the U.S. Navy, as a forward deployed, crisis response force, the role of the Marine Corps was formally articulated by the 82nd Congress:



“The Marine Corps shall be organized trained and equipped to provide Fleet Marine Forces of combined arms, together with supporting air components, for service with the fleet in the seizure or defense of advance naval bases and for the conduct of such land operations as may be essential to the prosecution of a naval campaign. In addition, the Marine Corps... shall perform such duties as the President may direct.”

The rationale for this mandate is found in the Congressional conference report. As it is stated, Congress saw a *“vital need for the existence of a strong force in readiness.”* Such a force should be *“versatile, fast-moving, hard-hitting,”* and the *“nation’s shock troops.”* Moreover, it should be *“most ready when the nation generally is least ready.”*

In addition to serving as *“a balanced force in readiness for a naval campaign,”* the Marine Corps will be *“ready to suppress or contain international disturbances short of large-scale war.”* Such a force, as Congress stated, is *“far from duplicative or competitive.”* Rather, it allows others to *“concentrate on their primary responsibility of preparing for all-out war.”*

The Marine Corps is preparing to win in the 21st Century by institutionalizing innovation and by developing the hardware, software, doctrine, and tactics required for combat success on the conflicts and rapidly moving battlefield of the future.



Emerging Security Challenges - Instability and Chaos

The role of the Marine Corps is even more relevant today. In the Cold War's aftermath, the United States has confronted great challenges. Nations are fragmenting along ethnic, religious and tribal lines, as evidenced by the disintegration of the former Soviet republics and Yugoslavia, as well as the tragedies of Somalia, Rwanda, and Liberia. We are clearly witnessing a new era of world violence. Since 1990, Marines have responded to crises with a creditable ability to deliver the appropriate level of assistance or force across the spectrum of conflict from humanitarian relief to participation in major theatre conflicts.

The 21st Century portends even greater challenges. The Joint Strategic Review, the Quadrennial Defense Review, and the National Defense Panel all concluded that it will be a perplexing and chaotic place of instability and conflict. The security environment will be characterized by dynamic political alliances and shifting economic power. In the Pacific, we are likely to see the emergence of new powers. Demographics are also a factor. By 2010, over 70 percent of the world's population will live in urban areas and most of these, within 300 miles of a coastline -- in the world's littorals.

One thing is certain, tomorrow's threat will be far more difficult to manage than yesterday's. In the early 21st Century, the threat will not be the son of Desert Storm; it will be the stepchild of Chechnya. Opponents will not be predictable or doctrinaire. They will not try to match us tank for tank, or plane for plane. Instead, they will attempt to mitigate our capabilities and fight us where we are least effective. The proliferation of high-tech weapons and weapons of mass destruction may make such asymmetric clashes may be as lethal as clashes between superpowers.

Therein lies the great danger of our time. The United States and the world cannot afford to allow crises to escalate and threatens its vital interests. Cultural clashes can trigger even bigger wars as outside nations and groups with cultural affinities take sides. They can, in fact, threaten the global order as well as jeopardize the the interdependent global economy.

To meet these future challenges, the Marine Corps will not rely on outdated solutions but is developing new concepts and techniques which will ensure decisive victory in the "*savage wars of peace*." Future conflicts that may demand in one moment, Marines to provide humanitarian assistance; in the next, to conduct peacekeeping operations; and finally, to fight a highly lethal mid-intensity battle... all in the same day... and all within three contiguous city blocks.

Naval Expeditionary Forces - Full Spectrum Assets

The Nation faces a variety of global challenges to its vital interests. The Marine Corps, in partnership with the Navy, is critical to meeting those challenges. Together, we provide Naval Expeditionary Forces – integrated air, land, and sea combined arms teams. These unique forces are mobile and self-sufficient and can operate unfettered from sea bases in international waters. When needed, they can immediately operate ashore in austere areas throughout the globe.

The multi-mission capability of Naval Expeditionary Forces enables them to handle a wide range of challenges. They routinely train with allies and coalition partners, and maintain surveillance of critical regions. They can enforce embargoes and denial regimes, or posture credible combat power in a region. Moreover, this multi-mission capability enables them to deal with uncertainty and adversity. Naval Expeditionary Forces can respond to the full operation of crises ranging from disaster relief to major theater war.



Naval Expeditionary Forces are powerful instruments of national policy. They provide the National Command Authority (NCA) with a “rheostat” capability -- a set of flexible military options that can support foreign policy initiatives.

If diplomacy resolves the crisis, naval forces can withdraw without having stepped ashore. From their sea bases in international waters they

can leverage diplomacy. If diplomacy fails, naval forces can transition from a peacetime presence to a host of deterrent actions. These include reinforcing allies, seizing ports and airfields, maritime and air interdictions, special operations, or evacuating noncombatants. If the crisis escalates to conflict, naval forces can project precise power from the sea in concert with follow-on forces. Whatever the case, the NCA can turn the power setting of this naval rheostat up or down as needed to achieve national security objectives.

U.S. worldwide engagement is vital to shaping the post-Cold War environment. Today, Naval Expeditionary Forces are the *sine quo non* of U.S. engagement. Every day, approximately 100 ships and more than 60,000 Sailors and Marines are involved in events overseas. Their forward presence underpins America's strategy of engagement and enlargement.



Naval Expeditionary Forces are an essential ingredient in promoting peace, free enterprise, democracy and actively shape regional security environments. These visible yet unobtrusive forces also provide psychological reassurance. According to a recent study which surveyed the elites in key countries along the Eurasian littoral, virtually all respondents viewed U.S. maritime presence as a stabilizing factor. As one Asian diplomat stated, *"I feel safer knowing that the Seventh Fleet is somewhere in the area."*

Naval Expeditionary Forces are also building new relationships. Last year, U.S. naval forces deployed in the Black Sea and trained with forces

from Romania and the Ukraine. Such exercises provide new democracies with a unique opportunity to train with U.S. forces. They greatly enhance interoperability and understanding between militaries. U.S. naval forces make these exercises feasible. Because they are sea based, they do not stress these nations' limited infrastructure.

In time of crisis, Naval Expeditionary Forces provide rapid and sustained response. They are either on the scene, or first to arrive. When floods in Kenya left 200,000 civilians isolated in February 1998, Marines provided food distribution over a 30 day period. Additionally, when rioting and civil unrest broke out in Jakarta, Indonesia in May 1998, an Amphibious Ready Group was prepared to conduct non-combatant evacuations with 12 hours notice. This ability to respond to such wide-ranging and far-reaching crises has made naval forces the preferred choice to support foreign policy objectives.

When it becomes necessary to actively influence events ashore, Naval Expeditionary Forces can provide power projection options tailored to the situation. Such was the case last year when an Amphibious Ready Group reinforced the U.S. Embassy in Albania with 55 Marines. On another occasion, naval forces conducted Tomahawk missile strikes against terrorist related targets in Afghanistan and Sudan in response to the bombing of U.S. embassies in Kenya and Tanzania. The range of naval power projection options includes carrier-based strikes, Marine Air-Ground Task Forces, special warfare forces, and sea-launched cruise missile strikes.



Such power projection will be a core capability for the 21st Century. As the National Defense Panel recently pointed out, *“The cornerstone of America’s continued military preeminence is our ability to project power rapidly and virtually unimpeded to widespread areas of the globe.”* It means projecting power into areas where the U.S. may or may not already have forces. Power projection is the persuasive potential behind forward presence.

With the decline in overseas basing, power projection from the sea has become the reliable option of choice. This unique capability stems from the naval forces ability to initially command the seas. From seabases, naval forces are able to dominate a foe in the littoral battlespace using a variety of organic power projection options. If necessary, this control over sea and land areas can ultimately enable the flow of other forces. The Navy and Marine Corps are uniquely capable of accomplishing this vital mission.

The 21st Century will place a higher premium on Naval Expeditionary Forces. They will remain the means with which we will protect global interests. They also reflect America’s will and ability to exert global leadership. Naval Expeditionary Forces, however, can do more than that. They ensure strategic balance. Naval Expeditionary Forces help mitigate uncertainties, and in doing so, preserve the predominance of America’s military strength.

Unique Marine Corps Contributions

As an integral part of Naval Expeditionary Forces, Marines serve as a strategically mobile combined arms team. As the landward extension of Naval Expeditionary Forces, Marines can directly influence events ashore. Our unique institutional culture and role within the national security establishment is best described by reviewing our core competencies. Together, these capabilities make Marine Corps forces universally recognized as premier crisis response forces.

Expeditionary Readiness

Marine Corps forces are more than just present along the world’s littorals they are *“expeditionary.”* Positioned and ready for rapid employment, Marine Corps forces have been designed to be self-sustaining, self-reliant, and readily employable under a wide range of challenging conditions. *“Expeditionary”* is a state of mind. Marines are trained to meet uncertainty and are capable of improvising in the face of adversity, and doing it with very little. Although expeditionary forces are

organized for joint operations, they are not dependent on them. They are a “full-up round,” ready to be fired down range, and ideally suited to meet the demands of the future security environment.

To Marines, this expeditionary orientation has three characteristics. First, it means being ever-ready to transition from peace to war without reserve augmentation, and to win our Nation’s first battles. Second, it means a relentless commitment to innovation -- continuously anticipating evolving strategic challenges and preparing to defeat the “*opponent after next*.” Third, it demands an adaptive force with leaders trained to improvise and flourish under conditions of extreme uncertainty.

Combined Arms Operations - Marine Air-Ground Task Forces

From the decks of ships, to deep inland objectives, Marines deploy and operate as a combined arms team. All combat arms are clearly integrated at the tactical level -- infantry, artillery, armor combat engineers, and aviation. All elements train and work as a single fighting force. The combined arms team is interoperable externally as well as internally and is fully integrated into the Naval Expeditionary Force. The result is a synergy that Marines readily exploit. They can rapidly generate the maximum combat power possible with only minimum logistics support ashore.



These combined arms teams are referred to as Marine Air-Ground Task Forces (MAGTFs) (See Appendix A) and have been a distinct feature of the Marine Corps for decades. MAGTFs are self-sustaining and rapidly deployable organizations of various sizes. They can be as small as Special Purpose MAGTFs and as large as Marine Expeditionary Forces. They are tailored to meet a wide spectrum of operations, ranging from short duration amphibious raids to large scale forcible entry amphibious assaults and enabling operations. Regardless of size, MAGTFs will normally be composed of a Command Element, a Ground Combat Element, an Aviation Combat Element, and a Combat Service Support Element. Led by a single commander, MAGTFs optimize the respective capabilities of its constituent elements.

The MAGTF concept has enabled the Marine Corps to work effectively with other forces. Because the MAGTF is already “*joint*” by nature, its operations can be quickly integrated with others. MAGTFs have effectively operated alongside the U.S. Army and U.S. Air Force, as well as with Allied forces. The Marine Corps has made a concerted effort to ensure the MAGTFs interoperability and they are well prepared to significantly contribute to future joint and combined operations.

Expeditionary Operations

Key to achieving success in expeditionary operations, is the ability to rapidly project force and then sustain combat and non-combat operations without “*host nation*” assistance. This ability requires a special mindset -- an acknowledgement of the necessity to be continuously prepared for immediate deployment into an austere environment. Marine forces arrive at the scene of a crisis with all that is needed to get the job done. Any resources available from the “*host nation*” are considered a luxury. This orientation drives the design, development, and acquisition of everything necessary to accomplish a wide variety of missions -- from individual equipment to expeditionary airfields and hospitals.

Marine aviation is distinguished from the other services by its expeditionary character. It can be based where others cannot. Marine fixed and rotary-wing aircraft can readily operate from bases at sea and ashore and can transition between the two without substantial loss of capability. Its expeditionary capability also enables Marine aviation to be based well forward. Its basing and multi-mission capability makes Marine aviation a tremendous force multiplier.

Forward basing is made possible by the expeditionary airfield system. Committed forces can rapidly construct and operate these stand-alone airfields in austere areas ashore. They provide numerous options and

flexibility for air operations. The systems, along with critical intermediate maintenance support, are embarked aboard aviation logistics support ships. These ships, the USNS CURTISS and USNS WRIGHT, are maintained in the Ready Reserve and operated by the Military Sealift Command and can, when required, deploy to crisis regions worldwide. They provide unified commanders with options.



Seabased Operations

Seabased operations allow extraordinary strategic reach and provide units a large measure of inherent force protection. Naval Expeditionary Forces operating from mobile sea bases provides the NCA with politically unencumbered access to global trouble spots.

Maritime Prepositioning Forces provide enough equipment and sustainment to support a MAGTF during its first month of operations. When needed, these ships can move to a crisis region and off-load either in port or at sea. The equipment and sustainment off-loaded can then be provided to Marines arriving at nearby airfields. The end result is a MAGTF rapidly established ashore and with minimal reception facilities.

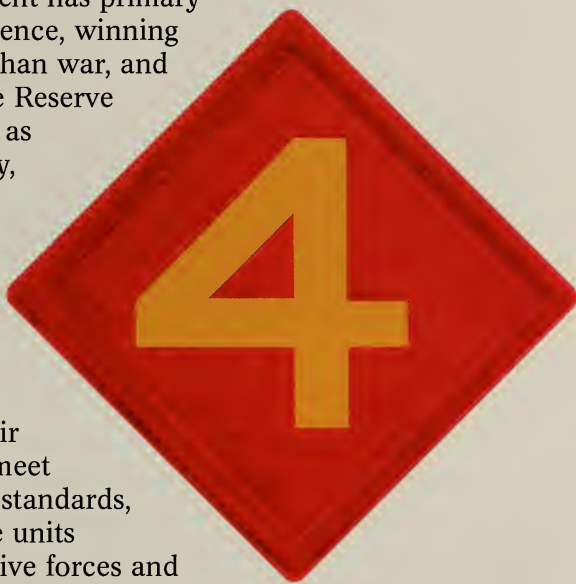
Three Maritime Prepositioning Squadrons are strategically located throughout the world. Each squadron is only a few days away from likely crisis locations and provide the Nation a strategic response capability that is global in nature, naval in character, and suitable for employment in a variety of circumstances.

Forcible Entry From The Sea

Ultimately, a global superpower must possess the ability for unilateral action. A key requirement is the capability to project power ashore in the face of armed opposition. In the past, forcible entry from the sea was defined by amphibious assaults that focused on establishing lodgments on the beach and then building up combat power for subsequent operations. Under the *Operational Maneuver from the Sea* concept, currently being implemented, it is now defined as the uninterrupted movement of forces from ships located far over the horizon, directly to decisive objectives, whenever and wherever we desire.

Reserve Integration

From Guadalcanal to the Gulf War, the Marine Corps Reserve has contributed significantly to Marine Corps combat operations. Today, it remains an essential part of Naval Expeditionary Forces. As a force in readiness, the Active Component has primary responsibility for forward presence, winning first battles, operations other than war, and response to crises. The Marine Reserve Force supports these missions as required, but more importantly, augments and reinforces the Active Component, creating a Total Force capable of sustained combat in the event of major theater war. Marine Reservists share the same commitment to expeditionary readiness as their active duty counterparts and meet common training, equipment, standards, and readiness criteria. Reserve units routinely exercise with the active forces and are assigned missions that lead to relevant combat responsibilities. They remain prepared to fight along side the regular force when needed.



In summary, Navy and Marine forces provide self-contained and self-sustained air, land, and sea forces operating from a protected sea base. They are organized to meet a broad range of contingencies including presence.

Transforming the Corps

Maintaining capabilities requires innovatively adapting to the realities of the 21st Century. Just laminating technology on current force structure and doctrine will not suffice. As the 1998 National Security Strategy states; *"The military challenge of the 21st Century, coupled with the aging key elements of the U.S. force structure, require a fundamental transformation of our military forces."* Meeting tomorrow's challenges requires an institutional commitment to change. The Marine Corps has begun this journey guided by vision, experimentation, and innovation.

Vision

❑ ***From the Sea and Forward... From the Sea*** set the strategic direction for the Navy and Marine Corps. These two documents frame the Navy and Marine Corps vision of the future. The Marine Corps concept for executing this vision is *Operational Maneuver from the Sea*. Built on *From the Sea and Forward... From the Sea*, it seeks a more versatile and effective power projection capability.

❑ ***Operational Maneuver from the Sea*** will provide Naval Expeditionary Forces with the ability to maneuver combat forces from the sea, to high value objectives deep inland without stopping at the water's edge. At the operational level, it will exploit enemy weakness and deliver a decisive blow. The concept combines high technology with maneuver warfare. What distinguishes *Operational Maneuver from the Sea* from all other types of operational maneuver is its extensive use of the sea as a means of gaining advantage. It serves as an avenue for friendly movement while acting as barrier to the enemy. The concept is designed to ensure that Naval Expeditionary Forces will project decisive power and influence in the 21st Century.

❑ ***Operational Maneuver from the Sea*** supports *Joint Vision 2010* -- the Chairman of the Joint Chiefs of Staff's template for how America's Armed Forces will channel the vitality and innovation of our people and leverage technological opportunity to achieve raw levels of effectiveness in joint warfighting. Imbedded in *Operational Maneuver from the Sea* are *Joint Vision 2010*'s operational pillars - dominant maneuver, precision engagement, focused logistics, and force protection.

❑ ***Operational Maneuver from the Sea*** is the Marine Corps capstone operational concept for the 21st Century. It is seen as applicable across a range of military operations, from small scale contingencies to major

theater war. It is also a road map to the future. This concept will incorporate the “*triad*” - the MV-22 Osprey tilt-rotor aircraft, the Advanced Amphibious Assault Vehicle, and the Landing Craft Air Cushion which is already in operation. The concept is also a catalyst for change. In the Spring of 1999, following the *Urban Warrior* Advanced Warfighting Experiment (AWE), the Marine Corps will establish a Force Structure Planning Group (FSPG). This review group will utilize the framework developed from the OMFTS working group, and the lessons learned from the *Hunter Warrior* and *Urban Warrior* AWEs, to ensure the Marine Corps is structured to conduct OMFTS in the 21st Century.



Experimentation and Innovation

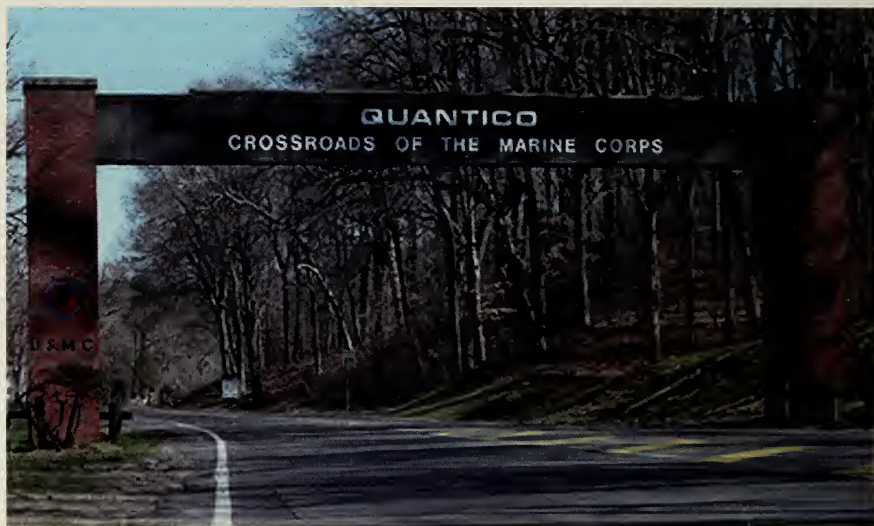
Making *Operational Maneuver from the Sea* a reality requires leveraging “*leap-ahead*” technologies which promise a warfighting edge well into the 21st Century. In this respect, the Marine Corps Warfighting Laboratory plays a key role. Established at Quantico, Virginia, in October 1995, the Lab serves as the Marine Corps conduit for ***operational reform***. It is investigating new technologies and evaluating their potential impact on our doctrine and warfighting capability. The laboratory is the vehicle that will help build a Marine Corps for the 21st Century.

At the forefront of the Marine Corps experimentation efforts is the test-bed referred to as “*Sea Dragon*.” Sea Dragon is the Marine Corps Warfighting Lab’s process for concept development, system evaluation, and experimentation. It seeks to build on existing strengths and create

new capabilities for future combat. It is aggressively pursuing improvements in such areas as fires, biological/chemical weapons defense, command and control, non-lethal weapons, expeditionary logistics, and advanced training.

In February 1997, as part of the Sea Dragon process, the Marine Corps Warfighting Laboratory conducted the first of three Advanced Warfighting Experiments in the desert at 29 Palms, California. Called *Hunter Warrior*, it was designed to see if a light, combined arms force, such as a Marine Expeditionary Unit, arriving early on scene in a conflict, could seize the initiative from a superior force when supported by long-range precision weapons. The experiment had some spectacular successes and some failures. The results have been provided to the Marine Corps Combat Development process for integration in our doctrine, organization, training, and equipment priorities.

Our next advanced warfighting experiment is *Urban Warrior*. Building on *Hunter Warrior*, it investigates enhancements for contingency operations in the urban littoral. It has involved limited objective experiments at Quantico, Virginia and Camp Lejeune, North Carolina.



Phase I *Urban Warrior* was conducted on the East Coast and was focused on developing equipment and technology to significantly improve urban operating capabilities. In the process, particular attention was placed on upgrading current Marine Corps training for urban combat. Phase II, being conducted on the West Coast integrates Phase I, tactics, techniques, and procedures with seabased urban operations. Also during Phase II, the technologies being developed in the Extended Littoral

Battlespace Advanced Concepts Technology Demonstration (ELB ACTD) will be incorporated. The ultimate objective is development of urban capabilities which will enhance seabased expeditionary forces.

The current advanced warfighting experiment - *Capable Warrior* - is the culminating phase of five-year experimentation plan. It will focus on fleet and Force-level operations across the entire spectrum of conflict. It will incorporate applicable concepts and technologies from *Hunter Warrior* and *Urban Warrior*.

The Extended Littoral Battlespace Advanced Concept Technology Demonstration (ELB ACTD) supports the Sea Dragon process and the Marine Corps Warfighting Laboratory's efforts. It will develop the information network necessary to support execution of OMFTS. The network will also provide real-time information to weapons systems, enabling them to engage targets faster and more precisely. The ELB ACTD will be conducted in 1999, concurrent with *Urban Warrior*. Another major system demonstration will occur in 2001 and will be linked to *Capable Warrior*.

Throughout its history, the Marine Corps has been at the forefront of military innovation. Driven by the highest institutional standards and demands of the battlefield, Marines have been instrumental in developing some of the most significant warfighting operational concepts, weaponry, and equipment in this century, including maritime prepositioning, amphibious assault doctrine, close air support, non-lethal weapons, and unmanned aerial vehicles. This innovative spirit still flourishes and is fundamental to the future health and readiness of the Marine Corps is building the Marine Corps of the future. We are transforming the Marine Corps to meet future challenges with investments, not only in technology and systems, but in our people.

Transformation

To succeed on the varied and dangerous battlefields of the future, Marines are imbued with the, Core Values of *Honor, Courage, and Commitment* which have served us so well throughout history. They must be warriors without peer -- men and women tactically and technically proficient, possessed of unfailing judgement and uncompromising in their character. Ultimately people, not machines, define our success in war.

Former Senator Dan Coats recently stated "*The Marine Corps teaches truths and convictions...it is the continuity of these values in the Marine Corps which has produced men and women of character and honor who are ready and willing to sacrifice their lives in defense of their country.*"

To make these warriors, we have developed the “*Transformation*” process. Its focus is on the enhancement of individual Marines and their ability to win in combat. The Transformation process consists of four phases: recruiting, recruit training, cohesion, and sustainment.

In the first phase, we seek to recruit young men and women of character and quality. To attain this goal, the Marine Corps has elevated its enlistment standards, and increased its emphasis on recruiting. In the second phase, these men and women undergo a lengthened and toughened recruit training. It culminates in the “*Crucible*” - a 54-hour



field training exercise that presents continuous mental and physical challenges. It is the defining moment of recruit training. The cohesion phase focuses on keeping Marines together through their first enlistment. The sustainment phase, conducted by the small unit leaders throughout the Corps, continuously emphasizes our institutional standards as a way of life.

Transformation will provide stronger, smarter, and more capable Marines, who have the self-confidence, warrior instincts, team skills, and character to meet the challenges of the 21st Century. And when these Marines return to society, whether after 4 years or 30, America will be better because its sons and daughters have been U.S. Marines.

Chemical/Biological Incident Response Force (CBIRF)

The CBIRF was created in order to response to the threat of chemical and biological terrorism and the Nation's lack of a force prepared to manage the consequences of such an attack. With organic security, detection, decontamination, and medical elements, the CBIRF is capable of "*consequence management*" operations or supporting domestic civilian "*first responders*." To enhance its capabilities, in the event of a chemical incident, the CBIRF is electronically connected via computers and teleconferencing equipment to a diverse group of experts, including a Nobel Laureate, located at universities, hospitals, and government organizations around the country. By means of this "*reach-back*" organization, this "*virtual staff*" provides the on-scene force with substantially enhanced capabilities.

The CBIRF has supported the 1997 Presidential Inauguration and the "*Summit of Eight*" meeting in Denver, Colorado. In 1997, the Chemical Biological Incident Response Force and the Army's Technical Escort Unit worked as a team in the Consequence Management Advanced Concept Technology Demonstration sponsored by the Office of the Secretary of Defense. Today Marines and Sailors who make up the Nation's CBIRF routinely deploy to train other agencies, such as the FBI and the National Fire Academy, in chem/bio incident response and to afford high profile events the guarantee of capable consequence management. This training resulted in an improved U.S. military capability to support federal, state, and local agencies in the event of a biological weapons attack. This capability came to be referred to as "*911-Bio*."



Reachback Capability

In the future, MAGTF Commanders will find themselves operating in a myriad of uniquely challenging complex situations, and environments. Doing so will effectively require the utilization of critical knowledge which exist outside the MAGTF. Potential partners for enhancing the MAGTF leadership's understanding of a contingency include government agencies, academic, industry, and non-government organizations. Accomplished MAGTF leaders will access the knowledge of these partners through a worldwide command information architecture. Reachback will play a pivotal role in the MAGTF Commander's ability to significantly increase operational and cultural awareness prior to initiating actions and in the development of plans, and in the formulation of commander's intent.



Non-Lethal Weapons

The Marine Corps has led the development of Non-Lethal Weapons (NLW) to provide greater flexibility in such operations. The weapons are crucial to reducing tensions, controlling potentially explosive events, and minimizing casualties among innocent civilians. To expedite their development and fielding of Non-Lethal Weapons, the Secretary of Defense has appointed the Commandant of the Marine Corps as the executive agent for the Joint Non-lethal Weapons Program. The Marine Corps has also been designated as the executive agent for the development of MOOTW Doctrine.



The Nation's Premier Crisis Response Force

In a period of dramatic change, the role of the Marine Corps endures. It is America's legion. Serving with forward deployed Naval Expeditionary Forces, this combined arms team is first on the scene, first to help, first to quell disturbances, and first to fight. This role is a constant in American defense and integral to today's National Security Strategy.

At the same time, the Marine Corps is committed to change -- transforming its capabilities to meet the demanding challenges of the future. It is a transformation that exploits innovative warfighting concepts and technologies, and enhances the individual Marine. The outcome of this transformation will be a Marine Corps that continues to be universally recognized as this Nation's premier crisis response force.



Chapter II

Concepts and Issues

Transforming today's highly capable Marine Expeditionary Forces to meet the challenges and uncertainties of the 21st Century requires a blending of new operational concepts, doctrine, and technology. The Marine Corps believes that any "system of systems" must bring together the human, conceptual, and technological dimensions of conflict with proper application of both science and the art of war to achieve success on the future battlefield.

Chapter II

Concepts and Issues

Transforming today's highly capable Marine Expeditionary Forces to meet the challenges and uncertainties of the 21st Century requires a blending of new operational concepts, doctrine, and technology. The Marine Corps believes that any "system of systems" must bring together the human, conceptual, and technological dimensions of conflict with proper application of both science and the art of war to achieve success on the future battlefield.



In this environment, achieving support for those concepts and programs that underpin the Marine Corps future operational success requires an informed consensus among the public, industry, and national leadership. This chapter presents those key concepts and issues that will enable the Corps to move into the next century.



Operational Maneuver from the Sea

Discussion

Operational Maneuver from the Sea (OMFTS) is the Marine Corps capstone operational warfighting concept for the 21st Century. It is applicable across the range of military operations, from major theater war to smaller scale contingencies. It is more than a road map to the future; it is a catalyst to stimulate a process of proposal, debate, and experimentation building on the foundation laid by “*Forward... From the Sea.*”

OMFTS describes a new form of littoral power projection in which Marines will apply the tenets of maneuver warfare -- at the operational level of war -- in the context of amphibious operations. In OMFTS, naval forces focus on an operational objective using the sea as maneuver space to generate overwhelming tempo and momentum against critical enemy vulnerabilities. It is a naval concept developed by the Marine Corps and

executed in concert with the Navy. It places unprecedented emphasis on the littorals and demands greater cohesiveness between naval warfare and maneuver warfare.

OMFTS offers the promise of extraordinary leaps in operational flexibility by introducing the notion of enhanced capabilities for sea-based logistics, fires, and command and control. Sea-basing greatly reduces the force's "*footprint*" ashore and therefore its vulnerability. It allows greater operational initiative and flexibility as forces will be liberated from establishing large shore based logistics depots and providing rear area security to protect them. Furthermore, the concept of seabasing will provide the Joint Task Force commander with the capability to maneuver combat forces seamlessly from the sea to the decisive objective area without the traditional impediment of securing the beach. Seabasing thus allows putting the "*teeth*" ashore while leaving the logistics "*tail*" afloat.

Several key platforms, each at the cutting edge of technology, are required to bring the OMFTS concept to fruition. They are the MV-22 Osprey, the Advanced Amphibious Assault Vehicle (AAAV), and the already operational Landing Craft Air Cushion (LCAC) vehicle. Once introduced to service, the STOVL variant of the Joint Strike Fighter (JSF) will provide fire support critical to the success of OMFTS. Continued development of these visionary enhancements will open new windows to power projection operations. They will enhance decisive responses by forward deployed forces in operations ranging from forward presence to conflict resolution.

Marine Corps Position

OMFTS is the Marine Corps central warfighting concept for the next century. It is a blending of maneuver and naval warfare enabling swift strikes against critical enemy vulnerabilities, while avoiding the enemy's strength to achieve mission success. OMFTS requires overcoming challenges in battlespace mobility, intelligence, command and control, and sustainment. The Marine Corps will meet these challenges by developing future combat capabilities in doctrine, organization, training, equipment, and support facilities.

Other Supporting Concepts

Discussion

The OMFTS concept reveals new ways of thinking about our primary mission of littoral power projection. Other supporting concepts build upon its theme, describing different aspects of future operations. Through wargaming and experimentation we identify and exploit the more promising concepts and supporting technologies for subsequent assessment. The Marine Corps Warfighting Laboratory serves as the focal point for operational reform, and is charged with evaluating new and promising concepts and technologies and assessing their total impact on the Corps warfighting capability. The Marine Corps Combat Development System translates validated operational concepts into requirements that identify programs to be resourced to achieve a capability. The Marine Corps is actively evaluating the following concepts intended to transform the Corps operational capabilities:

❑ ***Ship to Objective Maneuver (STOM):*** STOM describes the tactical implementation of OMFTS through the application of the tenets of maneuver warfare to amphibious operations. It builds upon many of the themes introduced in OMFTS such as use of the sea as maneuver space, sea basing, and elimination of the requirement for a traditional beachhead. Departing from the traditional, linear form of amphibious operations practiced during most of this century, STOM envisions amphibious assaults in which both surface and vertical lift platforms launch from over the horizon attack positions. The concept calls for exploitation of navigation and information sharing technologies to allow landing force tactical commanders to control the maneuver of their units from the moment they cross the line of departure at sea, to arrival at the objective.

❑ ***Maritime Prepositioning Forces (MPF) 2010:*** This concept will enable next generation MPF to provide enhanced contributions to forward presence and power projection. These enhancements are best illustrated by the pillars of MPF Future (MPF(F)) in the 2010 timeframe and beyond.

❑ ***Sustained Operations Ashore:*** The inherent flexibility of the MAGTF, merged with new technologies, will permit the future MAGTF to function as an operational maneuver element during sustained operations ashore. As an operational maneuver element, the MAGTF can be used to pave the way for decisive operations by other elements, as a decisive force to unhinge the enemy's operational centers of gravity, or as an exploitation force to take advantage of opportunity on the battlefield. The role of the MAGTF in Sustained Operations Ashore will be different in

the 21st Century. The battlespace of the future will often be nonlinear and lack large, easily targeted enemy formations. Critical vulnerabilities will be difficult to discern and difficult to engage. Physical occupation of large terrain will be less important than focused attacks aimed at reducing the enemy's ability and will to fight. The MAGTF will remain a general purpose force, but one capable of executing a series of precise, combat actions. The inherent flexibility, versatility, and responsiveness of the MAGTF and its incorporation of emerging technologies will permit an expanded role for the Marine Corps in future sustained joint operations.



❑ ***Military Operations on Urban Terrain (MOUT):*** Given current projections of dramatic increases in urbanization, especially in the volatile developing world, Marines are preparing for extensive operations in cities. Historically, MOUT have been attrition style operations, relying upon overwhelming firepower to achieve the destruction of the enemy's materiel assets. Such attrition style combat exacts a toll in casualties and infrastructure destruction which is inconsistent with the OMFTS warfighting philosophy. In the future, the Marine Corps will adapt maneuver warfare to the urban environment to accomplish its mission at significantly lower human and material costs. Marines will achieve the transformation to urban maneuver warfare through enhancements in the following seven capability areas: command and control, measured firepower, multi-spectral mobility, awareness, adaptability, force protection, and sustainability. Future MOUT is the framework for the *Urban Warrior Advanced Warfighting Experiment* being conducted by the Marine Corps Warfighting Lab in early 1999.

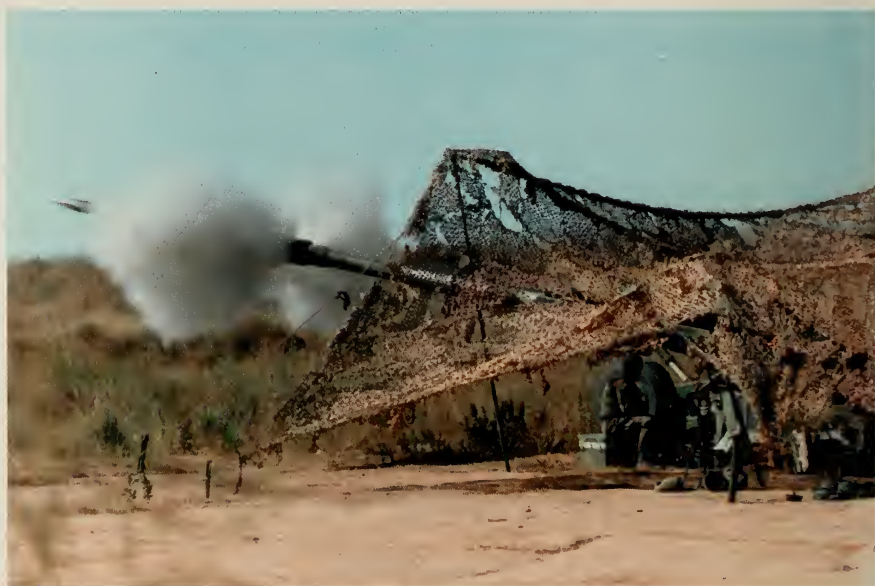
❑ **Seabased Logistics:** This naval concept expands the scope of logistics support for operations ashore by exploiting existing and emerging technology and practices. Seabased logistics proposes four key changes to sustainment: elimination of the traditional force beachhead; reduction of logistics demand; implementation of stride sustainment; and transition to sustained operations ashore.

❑ **Other Operational Concepts:** Additionally, the Marine Corps is actively evaluating the following concepts:

- *Military Operations in a Riverine Environment*
- *Antiarmor Operations*
- *Information Operations*
- *Naval Mine Countermeasures in Future Littoral Power Projection*
- *Advanced Expeditionary Fire Support*

Marine Corps Position

Creating new operational concepts to conduct future battlefield operations and developing innovative force designs that provide versatile organizational and employment arrangements are essential to Marine Corps success in the 21st Century. In order to realize these objectives, we must leverage new advanced technologies via emerging operational concepts to redefine how Marine forces will conduct successful operations across the conflict spectrum.



Beyond C2 - Comprehensive Command and Coordination

Discussion

In the next century we are likely to see Marines conducting humanitarian operations, peacekeeping, and high intensity combat -- all on the same day and in the same operating area. Execution of these diverse missions will require Marines to routinely work side by side with government, non-government, and international agencies. Beyond C2 outlines a transition from traditional notion of command and control to the concept of command and coordination. The aim of MAGTF comprehensive command and coordination is to empower commanders at every level to focus resources upon a mission, while enabling the inventiveness and initiative of subordinates. It suggests going beyond conventional forms of military power and incorporating non-traditional elements of national power in support of forward deployed forces.

The concept envisions coordinating the intellectual, diplomatic, experiential, and material power of the military, academia, industry, government, and non-government organizations to address the challenges of the 21st Century. The Marine Corps is doing this right now with the Chemical Biological Incident Response Force (CBIRF). The Marine Corps has tapped into the expertise of Nobel Laureate, Dr. Josh Lederberg, and others, to assist in the event of a chem/bio attack. As the head of our reachback staff, Dr. Lederberg and his team join CBIRF at the scene of response via telecommunications and provide valuable diagnostic and treatment information. It is not difficult to visualize the expansion of the concept to a point where the expertise of chemical companies, computer and software firms, banks, and environmental groups onto the 21st Century battlefield.

Through a seamless information architecture, future comprehensive command and coordination will provide increased freedom of action and access to all elements of national power. Control is a part of effective command not resident in the technologies used. The capability to provide superior command will further our ability to apply the tenets of maneuver warfare in all operations. Reachback access to non-traditional elements of power will give MAGTF commanders an improved ability to detect emerging crises, effect deterrent action, respond where necessary, and resolve threats to national interests.

Marine Corps Position

Beyond C2 is an evolutionary enhancement of MAGTF power and flexibility. It envisions new capabilities whereby control is imbedded within our philosophy of command, and forward deployed commanders exploit the entire spectrum of our national power to conduct military operations in support of national interests.

Joint Concept for Non-Lethal Weapons

Discussion

In recent years, U.S. forces have increasingly conducted military operations other than war. This category of operations includes such missions as humanitarian assistance, military support to civil authorities, peace operations, and noncombatant evacuations. Increased interaction between friendly troops and friendly, neutral, or hostile civilian populations has become an inevitable feature of the contemporary landscape. The tactical application of non-lethal weapons (NLWs) is often useful in such scenarios.

Non-lethal weapons are explicitly designed and primarily employed to incapacitate personnel or materiel, while minimizing fatalities, permanent injury to personnel, and collateral damage to property and the environment. NLWs must be compatible with, easily integrated with, and complementary to, current and planned conventional weapons. They must be capable of achieving the desired effects on targets instantaneously without degrading the tactical posture of friendly forces.

NLWs reinforce deterrence efforts and expand the range of options available to commanders. They enhance our capability to discourage, delay, or prevent hostile action; to limit escalation; to isolate the battlefield. They also allow military action in situations where use of lethal force is not the preferred option. The DOD is now in the process of fielding NLWs capability sets. NLWs were employed during the withdrawal of United Nations forces from Somalia, during the intervention in Haiti, and they are currently deployed in the former Yugoslavia. The current systems include non-penetrating projectiles (rubber bullets and bean-bag rounds), flash-bang grenades, pepper spray, aqueous foam barriers, and caltrops.

In 1996, the Under Secretary of Defense for Acquisition and Technology (A&T) appointed the Marine Corps DoD Executive Agent for NLWs. Leadership in this area transitioned from the Office of the Secretary of Defense (OSD) to the Joint NLW Directorate (JNLWD) in 1997. The JNLWD continues to review and harmonize joint requirements, Service funding, and program execution. The JNLWD has negotiated a Memorandum of Agreement among all Services and the U.S. Special Operations Command for effective management and coordination of non-lethal efforts.

Marine Corps Position

This joint concept supports the Marine Corps as the designated DoD Executive Agent for NLWs. It establishes a set of guiding principles to ensure common direction of the Services and agencies (both Defense and non-Defense) and efficient use of resources in the development of non-lethal capabilities. The Marine Corps believes that NLWs provide commanders increased options for resolving complex problems encountered across the range of military operations and expand policy choices. They provide a credible capability to use discriminate, measured force to influence pre-conflict, conflict, and post-conflict situations.

Revolution in Military Affairs

Discussion

Our success in the Gulf War and the explosive growth of information technologies have given rise to speculation that the character of warfare is profound transformation. Such an assessment holds that we are in the midst of a Revolution in Military Affairs (RMA). Many believe that information technology can help those who master it win large wars at long distances with small forces.

There are, however, several weaknesses to an information dominant approach. First, service in which information dominance is of less value and stand-off strike is largely irrelevant in today's "*smaller-scale contingencies*". Second, the sophisticated information systems on which the RMA is predicated will themselves be vulnerable to information warfare. Third, the threat weapons of mass destruction use may be stimulated by the Revolution in Military Affairs, since adversaries will be left no other effective means of attack. Fourth, the diffusion of information technology will permit potentially hostile states to acquire military capabilities pioneered at great cost by the United States. Some argue, in fact, that the RMA might lead to a high-tech arms race that will eventually leave U.S. interests less secure.

On the other hand, what many think of as a single RMA is really a series of potential improvements. It is not known which information systems, biotechnology, space systems, unmanned systems, directed energy and biological warfare can be exploited for military applications. Without a true understanding of how to leverage these technologies, it remains unclear how the RMA will influence the character and nature of war in the next century. Whatever technologies emerge, the degree to which future security challenges can be addressed by RMA technologies remains uncertain.

Ultimately, our National Security Strategy and our vital interests will not be assumed by technology alone. We must develop capabilities to respond to a broad range of crises and conflicts. The forces we design today for "*the day after tomorrow*" must be capable in all operating environments, from deserts to densely populated urban centers. Our forces must be able to handle those things that technology alone cannot solve. By proper application of both the "*science*" and the "*art*" of war we will ensure success on the battlefields of the future.

Marine Corps Position

The Marine Corps believes that only when technology is combined with dramatic changes in military doctrine and organizational concepts that alter the conduct of operations, do we achieve revolutionary leaps in capability. The Marine Corps focuses on "*system of systems*" approach that brings together the human, conceptual, and technological dimensions of conflict.

Power Projection Capabilities

Discussion

Rapidly projecting decisive military power is key to the National Military Strategy. Amphibious and maritime prepositioning forces play a critical role in U.S. power projection. Replacing and revitalizing the essential platforms and improving the effectiveness of these expeditionary forces is a major goal. To that end, the Marine Corps will consistently blend advances in technology with newly developed operational concepts. Today, the Navy-Marine Corps Team is rapidly implementing the strategic and operational concepts of *“Forward... from the Sea”* and *Operational Maneuver from the Sea* (OMFTS) to take full advantage of the littoral environment and the maneuver space it provides. Emerging technology now makes the OMFTS concept a near reality and enables a tremendous increase in the flexibility, agility, and effectiveness of our Marine Expeditionary Forces -- significantly expanding naval power projection capabilities. The following initiatives are key to the achievement of our operational objectives:

■ **Advanced Amphibious Assault Vehicle (AAAV).** The AAAV is critical to the Corps future ability to project power inland from amphibious ships. Increased speed and survivability allow a faster buildup of combat power ashore, ensuring greater force survival, and effectiveness. Its will allow tactical maneuvers from ship to objective area from over the horizon, creating significant operational advantages. The AAAV will replace the current AAV7A1 family of assault amphibious vehicles that are now almost 30 years old.

■ **MV-22 Osprey .** The MV-22 tilt-rotor aircraft allows combat power to transition ashore faster and increases the depth of the battlefield through its enhanced range, endurance, and flexibility. It replaces the aging medium lift CH-46 Sea Knights and CH-53D Sea Stallions. While fulfilling the Marine Corps critical medium lift requirement, the MV-22's increased capabilities also provides significant tactical and operational leverage. The MV-22 is making OMFTS a reality.

■ **Landing Craft Air Cushion (LCAC).** The LCAC is a shipborne, high speed, over the beach, ship-to-shore, over the horizon amphibious landing vehicle capable of a 60 ton payload. The payload may include both troops and equipment as heavy as the M1A1 Tank. The LCAC significantly increases the build up rate ashore. A service life extension program will ensure its viability into the future.

■ **Maritime Prepositioning Force (Enhancement) (MPF(E)).** MPF(E) will alleviate shortfalls in the existing Maritime Prepositioning Ship (MPS)

squadrons and provide new capabilities to correct deficiencies highlighted during *Desert Storm* and *Operation Restore Hope*. These new ships will carry additional equipment and supplies including: an expeditionary airfield, a Naval Mobile Construction Battalion, and fleet hospital equipment. The result will be a much more capable Maritime Prepositioning Force (MPF).

❑ ***Shallow Water Mine Countermeasures.*** This program is designed to improve critical deficiencies in mine countermeasures. The development of technology and systems to detect, clear, and neutralize these threats is vital to allow our forces to maintain presence, to maneuver unencumbered throughout the littoral areas, and to effectively project combat power ashore.

❑ ***Naval Surface Fire Support (NSFS).*** NSFS is an essential dimension of our power projection capabilities. The current program is focused on development of a high energy modification to the existing 5 inch/54 caliber gun and extended range guided munitions. This program is expected to begin meeting Marine Corps operational requirements by FY01. The long-term program calls for the development of a larger caliber gun and the shipboard adaptation of extended range missile systems similar to ATACMS, SEA SLAM, or Standard Strike Variants. These enhancements will provide a critical boost to Marine amphibious capabilities and will result in extended, more accurate, and more lethal support to maneuver forces ashore.

❑ ***Joint Strike Fighter (JSF).*** The JSF will provide the Marine Corps a state-of-the-art, next generation, short takeoff and vertical landing (STOVL) aircraft to replace the AV-8B and F/A-18A/C/D. It will be a superior performance, stealthy, multi-mission jet aircraft possessing state-of-the-art technology that can operate with full mission loads from amphibious class ships or austere expeditionary airfields. This blend of stealth, performance, and basing flexibility will enable the STOVL JSF to perform a broad range of OMFTS missions including: escorting the MV-22; striking critical deep targets; providing armed reconnaissance, close air support, and suppression of enemy air defenses; and conducting active air defense missions. With the STOVL JSF, Marine aviators will be able to support the full range of OMFTS mission profiles and provide Marine ground forces the precise and timely fire support needed on the 21st Century battlefield.

Marine Corps Position

Technological advances enable the Corps to rapidly move OMFTS from the concept stage to reality. The Corps acquisition focus is to leverage technological initiatives that improve the mobility, flexibility, and lethality of our Marine Expeditionary Forces in a cost-effective manner. These initiatives enhance the Marine Corps role in the National Military Strategy.

Marine Tactical Aviation

Discussion

The expeditionary character of Marine aviation allows it to operate effectively across the full spectrum of basing options. Marine Tactical Aviation (TACAIR) squadrons deploy from conventional airfields when available, from aircraft carriers and amphibious ships as seabased airpower, and in the absence of adequate runways, the Marine expeditionary airfield system provides the capability to rapidly construct stand-alone airfields to support forward based TACAIR operations.

The ability of Marine TACAIR to integrate with, and reinforce, naval operations is well documented. Marine squadrons deployed aboard aircraft carriers in World War II, the Korean War, and Vietnam. More recently, Marine squadrons operating as part of Navy carrier air wings and off amphibious ships have participated in such operations as *El Dorado Canyon*, *Southern Watch*, *Restore Hope*, *Deny Flight*, and *Deliberate Force*. Every MEU(SOC) Composite Squadron includes AV-8Bs. Furthermore, five Marine F/A-18 squadrons are currently integrated with Navy carrier air wings. Marine TACAIR assets not assigned to support shipboard deployments maintain the capability to do so.

Marine TACAIR squadrons operate as an integral part of the MAGTF. During the early days of Operation *Deny Flight*, Marine TACAIR responded within 48 hours of the deployment order. In keeping with our expeditionary nature, Marine TACAIR will continue to maintain its aviation forces in a high state of readiness. The capability to task organize and deploy Marine TACAIR assets aboard ships or to expeditionary land bases, to any location in the world within 72 hours of notification, will remain the standard of excellence required of the Nation's force in readiness.

When necessary, Marine TACAIR forces can begin operations in an austere environment in less than seven days by using existing roads or prefabricated VSTOL within 30 days, a fully operational expeditionary airfield, capable of sustained fixed-wing operations, can be constructed. Marine TACAIR has been, and will continue to be, ready to deploy an expeditionary task organized, air-heavy MAGTF capable of the full spectrum of TACAIR missions in joint and Coalition environments to both existing airfields and austere locations.

Marine Corps Position

Air support to the MAGTF commander remains the primary mission of Marine aviation. Units scheduled in support of MAGTF elements must be trained to a level of proficiency that satisfies the MAGTF commander. Each Service brings unique capabilities to joint warfare that when integrated under joint doctrine improves service interoperability and overall warfighting effectiveness.

Marine Corps Aviation Modernization

Discussion

In addition to the aviation recapitalization programs, several significant aviation modernization programs have been initiated, or are underway, to restore and enhance the capabilities of existing aviation platforms. This modernization effort is significant to our overall recapitalization effort. It has allowed us to use current and enhanced capabilities to sustain our combat edge while we develop the next generation of aircraft, weapon systems and munitions. Vital to the Marine Corps aviation modernization effort is the initiative to remanufacture our fleet of aging AV-8 attack aircraft. Other important aviation modernization initiatives include the CH-53E Service Life Extension Program (SLEP), the CH-46 Dynamic Component Upgrade (DCU), the AH-1W Night Targeting System (NTS) upgrade, the Advanced Tactical Air Reconnaissance System (ATARS), Pioneer (UAV), and Aviation Command and Control Modernization. These efforts, and many others, are vital to ensuring a capable and potent Marine Corps in the future.

□ ***The AV-8B Remanufacture Program*** upgrades day attack aircraft into a more capable radar/night attack variant. The wing and many original items are retained. Added to a new fuselage is a night attack avionics suite (NAVFLIR, digital moving map, color displays, NVG lighting) and a surplus APG-65 multimode radar from the F/A-18. The aircraft receives the more powerful and reliable Pegasus (408) engine and an additional 6,000 hours of airframe life for 80 percent of the cost of a new aircraft.

□ ***The CH-53E SLEP*** is critical to sustain our aging fleet of heavy lift helicopters until a Joint Transport Rotorcraft is developed sometime in the second decade of the next century. The current fleet of aircraft begin to reach the end of their service life early in the 21st Century. The SLEP is currently programmed in two phases. Phase I will maintain the air worthiness of the fleet by modifying the airframe in critical structural wear points, improving tail rotor drive-shaft components and removing and replacing older KAPTON wiring. Phase II goes beyond basic air worthiness improvements with upgrades of obsolete avionics, cockpit integration, internal and external cargo systems, safety and survivability components, and dynamic components.

□ ***The CH-46E Dynamic Component Upgrade (DCU)*** is essential to maintaining our medium lift assets until those aircraft can be replaced by the MV-22 Osprey. The DCU replaces rotor heads, critical components in the flight control system, and certain drive train and transmission

components. The DCU will allow removal of all of the burdensome flight restrictions now in place on the CH-46E (10 hour inspections, weight restrictions, operating limits). A total of 105 aircraft have received the new DCU rotor heads.

❑ ***The KC-130J*** will replace the Corps aged fleet of active force KC-130F/R Aerial Refueler/Tactical Transport aircraft. Recent results from a Service Life Assessment Program (SLAP) have confirmed that the actual fatigue life remaining on the Corps venerable fleet of KC-130F/R Aerial Refueler/Tactical Transports is significantly less than previous data from NAVAIR. Greater reliability and maintainability (14 of 15 KC-130F/R/T) readiness degraders eliminated), coupled with lower operating and support costs, will result in lower life cycle costs for the KC-130J. In addition to the increased warfighting capability associated with the newer technology inherent in the KC-130J, the Marine Corps would realize the added benefit of a reduction in manpower required to operate and maintain a KC-130J fleet.

❑ ***The AH-1W Night Targeting System (NTS)*** Upgrade includes forward looking infrared, low light television, laser designator/range finder, and an automatic boresighting and tracking system. This multi-faceted enhancement enables the AH-1W to conduct its mission on a 24 hour basis and under conditions of reduced visibility. This expands the AH-1W's warfighting capabilities by increasing detection, recognition, and identification ranges in most degraded weather conditions to include low light level conditions. The laser rangefinder enhances conventional weapons delivery and supporting arms coordination missions, and the laser designator provides an autonomous weapons engagement capability for the Hellfire missile.

❑ ***The Advanced Tactical Airborne Reconnaissance System (ATARS)*** is designed for the F/A-18D to restore a manned airborne reconnaissance capability to the MAGTF. The ATARS incorporates multiple sensor capabilities including electro optical, infrared, and synthetic aperture radar sensing. The man in the loop remains the strength of this system. ATARS equipped aircraft will carry all sensor capabilities simultaneously. This multi-sensor capability will be completely selectable by the aircrew in flight. Another significant capability of ATARS is its ability to digitally transmit collected data in near real time to ground receiving stations. This information can be provided to various information/intelligence systems for national exploitation via the Joint Service Imagery Processing System-Tactical Exploitation Group (JSIPS-TEG). Consequently, ATARS, with its significant capability, is poised to become a major contributor in the national imagery arsenal.

❑ **The Pioneer System** will be the Marine Corps backbone Unmanned Aerial Vehicles (UAV) until a replacement is fielded. UAVs will grow in importance as the capability of these futuristic machines is developed. The Marine Corps ultimately views a VTOL capable UAV as a possible end state platform for the flexibility necessary for OMFTS. The Tactical Control Station (TCS) remains central to our developmental efforts. TCS will give us a Ground Control Station (GCS) with tremendous growth potential as well as connectivity with the whole family of UAVs from tactical to the High Altitude Endurance UAVs, as well as intelligence nodes. The Dragon Drone, a small, short range, low cost UAV that the Marine Corps Warfighting Laboratory is experimenting with, will provide important concept of operations experience and significant data on emerging technologies such as airframes, power plants, data links, and recovery systems.

❑ **Aviation Command and Control Modernization.** All current Marine Aviation Command and Control Systems (MACCS) are being replaced incrementally by the Common Aviation Command and Control System (CAC2S). CAC2S will provide a system that is capable of plugging into the Joint/Combined environment and is rapidly deployable and horizontally employable. CAC2S will stress shipboard compatibility while retaining joint capability ashore. Funded improvements to AN/TPS-59; the Marine Corps three dimensional, long-range radar; include enhanced detection, tracking, and cueing of smaller radar cross section targets. The improved radar provides land based air surveillance for the Marine component of a Naval force and is a contributing sensor to the Navy's Cooperative Engagement Capability. This system is also capable of providing early warning as well as point-of-origin/point-of-impact calculation in support of theater missile defense. Marine Aviation command and control will provide the landward "eyes" for seabased shooters as well as engagement control for land based systems, and radar intercepts for airborne platforms. CAC2S will contribute to a commander's ability to have full spectrum situational awareness. This will produce a Joint, common, continuous and unambiguous air picture with fire quality data. This capability will enhance early detection, classification, and identification of all tracks and provide defense-in-depth with 360 degree coverage.

Marine Corps Position

The Marine Corps continues to pursue new and innovative weapon systems improvement and modernization efforts such as the AV-8B Remanufacture, CH-53E SLEP, CH-46 DCU, AH-1W NTS upgrades, ATARS, Pioneer UAV, and Aviation Command and Control Modernization to maintain its combat superiority and tactical relevance in the changing world.

MV-22 Osprey

Discussion

Today the Marine Corps stands on the threshold of a revolutionary capability employing 21st Century technology. Recognizing the tremendous operational advantages of tiltrotor technology, the Corps has championed the development of this innovative aircraft. The impact of this capability will be as far reaching as the Marine Corps introduction of helicopters on the battlefield of the Korean War.

In December 1994, the Secretary of Defense announced the decision to replace the CH-46 Sea Knight with the MV-22 Osprey. The new tiltrotor aircraft has greater speed, range, and payload. It will carry 24 combat-loaded Marines which will enable the MAGTF to exploit its combat power and effectively execute OMFTS well into the 21st Century.

Strategically mobile, the Osprey is capable of global self-deployment with its aerial refueling ability. The combination of range, speed, and payload of the MV-22 nearly triples the depth of a MAGTF's present day area of influence. This significantly complicates an enemy's defensive requirements and inhibits the enemy's opportunity to concentrate forces. The superior combat radius of this aircraft allows Navy ships to maintain adequate stand-off distance from enemy antiship missiles, enhanced observation devices, underwater mines, and other developing threats.

In today's volatile environment, the expeditionary Marine Corps is the most capable and cost-effective option among deployable conventional forces. The arrival of the MV-22 in the FMF will provide the flexibility needed to prevail against the increasing uncertainty of future aggressors.

Marine Corps Position

The acquisition of the MV-22 represents a tremendous improvement in our ability to project power from over the horizon to inland objectives in OMFTS. The MV-22 remains the Marine Corps number one and most critical aviation acquisition priority.



Joint Strike Fighter (JSF)

Discussion

The Defense Department established the Joint Strike Fighter (JSF) program to develop technologies that would lead to the replacement of several different aircraft systems. The JSF program is intended to provide the next generation aircraft for the Marine Corps, Navy, Air Force, and the Royal Air Force and Royal Navy. Specifically, the Marine Corps needs to replace the AV-8B and F/A-18C/D aircraft with a single Short Take Off and Vertical Landing (STOVL) platform. The Air Force needs a replacement for the F-16. The Navy requires a first day of the war, survivable aircraft to complement the F/A-18E/F. The United Kingdom is interested in replacing the GR-7 and Sea Harrier with a STOVL



Fighter/Attack aircraft. The JSF program strives to fulfill the needs of all three Services and the United Kingdom through the concept of a family of operational aircraft. This approach will result in optimal commonality between variants and minimize aircraft life cycle cost. This family of JSF aircraft will include a STOVL variant (Marine Corps and United Kingdom), a Conventional Take Off and Land (CTOL) variant (U.S. Air Force), and an Aircraft Carrier Capable (CV) variant (Navy). The responsibility for meeting these service requirements rests within the JSF Program Office.

The Marine Corps requirements for this aircraft are focused on readiness, large deck amphibious ship basing, expeditionary capability,

and the combined-arms concept. The forward deployed and expeditionary nature of MARFORs requires that its TACAIR assets be capable of independent decisive action across the range of assigned missions. Missions include: close air support, armed reconnaissance, interdiction, defensive counter air, offensive counter air, suppression of enemy air defenses, reconnaissance, Tactical Air Controller (Airborne)/Forward Air Controller (Airborne), and strike coordination and reconnaissance with inherent electronic protection, electronic attack, and electronic warfare support to conduct autonomous operations. The Marine STOVL version of the JSF will be highly lethal, responsive, flexible, and fit the Marine Corps neckdown strategy. The aircraft will be survivable and supportable, as well as light enough to meet the Marine Corps expeditionary needs. Furthermore, the next generation strike fighter must be affordable to ensure that sufficient numbers are available to maintain the character and capability of Marine aviation.

Marine Corps Position

The STOVL JSF is absolutely critical to the Marine Corps of the 21st Century. It will solve the Marine Corps TACAIR age and attrition problems and meet Marine aviation's goal to neckdown to a single type of fixed wing aircraft. But more importantly, it will provide the Marine Corps with a superior performance, stealthy, state-of-the-art technology, multi-mission jet aircraft that can operate with full mission loads from amphibious class ships or austere expeditionary airfields. The STOVL variant of the JSF will be a superior attack aircraft, a top line fighter, and an escort for the MV-22 -- all in one platform. Its stealth characteristics, flexible basing posture, and superior performance in all mission areas will revolutionize air warfare and naval aviation. Delivery of the JSF is scheduled to begin around 2008 and will bring the Marine Corps closer to the vision established in 1957 by Commandant Randolph McCall Pate of an all STOVL aviation force.



Marine Helicopter Recapitalization

Discussion

The Marine Corps has a long history of innovative solutions to warfighting requirements. In the past, when faced with the expense of replacing older aircraft such as the early versions of the AH-1, CH-46, and AV-8, the Marine Corps found affordable solutions through aircraft modernization programs. These programs were designed to correct existing aircraft deficiencies and enhance operational capability to provide the Marine Corps with a credible operational force. This is the same approach being taken to upgrade the fleet of utility and attack helicopters.



In 1995, the Secretary of the Navy approved the Marine Corps program to upgrade both utility and attack helicopters. This program, known as the H-1 upgrade, recapitalizes the entire fleet (100 UH-1N and 180 AH-1W). It builds on the existing aircraft capabilities, takes advantage of current upgrade efforts (COMNAV, Electronic Warfare and NTIS), and upgrades systems to provide the Marine Corps with an advanced fleet of light attack helicopters. At the center of the upgrade is the installation of a four-bladed rotor system, a newly developed drive train, and more powerful T700 engines. The addition of an improved cockpit and modern avionics systems will provide a more lethal platform as well as enhanced joint interoperability through the digital architecture and the installation of DCS 2000 radios. In sum, this program

incorporates all previously funded or planned modifications into one program, avoiding the cost of a “*new start*” replacement aircraft until a Joint Replacement Aircraft is fielded.

Operational enhancements include a dramatic increase in range, speed, payload, and lethality of both aircraft while significantly decreasing their logistic footprint. The utility variant will operate at nearly twice the current range with over double the payload. The attack variant will realize similar performance increases. It will also carry twice the current load of precision guided munitions with the addition of two wingtip ordnance stations. Both aircraft will achieve cruise speeds of over 150 knots at most mission weights. This program has coined a new word “*identity*”. Through use of the same major components,-- drive train, cockpit and software --support for the fleet will be greatly simplified resulting in leaner logistic trains and more space available on already space-constrained amphibious and MPF ships. Moreover, these improvements will make the Marine Corps attack and utility helicopter capabilities more compatible with the performance demands of OMFTS concepts.

Marine Corps Position

The H-1 upgrade program is an economical and comprehensive upgrade of both UH-1N and AH-1W helicopters that will resolve existing operational safety issues while significantly enhancing the capability and operational effectiveness of the attack and utility helicopter fleet. A key modernization effort, the H-1 upgrade will provide a bridge until the introduction of the Joint Replacement Aircraft in the 2020 timeframe.



Marine Corps Aviation Precision Weapons

Discussion

The Marine Corps requires aviation weapons to primarily perform close air support, deep air support, armed reconnaissance, air interdiction, and suppression of enemy air defenses in support of the combined arms concept during OMFTS.

The Department of the Navy has established the future aviation weapons roadmap for Naval and Marine aviation. This strategy decreases the different types of weapons in the inventory by necking down to multi-purpose weapons that effectively address the multitude of threats in the 21st Century. This modernization effort will emphasize precise weapons that produce minimal collateral damage. In addition to the modernization effort, the Marine Corps is striving to maintain a high level of training for aircrews. Newly revised training and readiness manuals have set a realistic requirement for the amount of ordnance needed by aircrews to maintain proficiency and training.

The Reactive Weapon category is a principal focus for the Marine Corps for new procurements. For Marine aviation to successfully support the ground combat element, the procurement strategy has been developed to reduce the inventory of three types of weapons down to one. This future weapon will be capable of being employed on both tactical aircraft and attack helicopters. Aircraft to employ this weapon are the F/A-18C/D Hornet, Joint Strike Fighter, AV-8B Harrier, and the AH-1W Super Cobra.

The Joint Direct Attack Munition (JDAM) is a mission kit added to a general purpose bomb to make it more precise. The JDAM family will replace laser-guided bombs and compliment general purpose bombs. Aircraft to employ this weapon are the F/A-18C/D Hornet, Joint Strike Fighter, and AV-8B Harrier.

The Urban Close Air Support Weapon is being closely studied by the Marine Corps Warfighting Laboratory. During *Urban Warrior*, advanced technologies and sciences are being applied to assess their combat potential. Their effects on both the urban and littoral environments are being addressed.

Marine Corps Position

The Marine Corps is strongly pursuing innovative aviation weapons that will provide optimum support for the individual Marine on the ground. These weapons will allow the Marine Corps to maintain its combat superiority and tactical relevance well into the 21st Century. The Marine Corps remains committed to realistic and relevant training in order to enhance aircrew readiness and provide the most proficient combat force in the world.

Advanced Amphibious Assault Vehicle

Discussion

In the 1980s, the Navy and Marine Corps developed the concept of over the horizon (OTH) assaults to avoid enemy strengths, exploit enemy weaknesses, and protect Navy ships from increased land based missile threats and seabased mine threats. This littoral warfare concept has matured into the OMFTS concept. The AAV Program, together with the MV-22 Osprey tiltrotor aircraft and the Landing Craft Air Cushion (LCAC), will provide the tactical mobility assets required to spearhead OMFTS. Furthermore, the AAV is critically important to



maneuvering a mobile and survivable surface assault force that can quickly secure inland objectives. Its swift and independent transit from OTH is the tactical assault capability currently lacking to enable LCACs to perform the follow-on assault and logistics functions for which they were originally designed. In addition to its greatly increased speed on the water, the AAV will provide superior land mobility, tremendously increased firepower, and advanced survivability features that compare to the best land fighting vehicles in the world.

The AAV's unique capabilities include: (1) over three times the water speed of the current AAV7A1; (2) equal armor protection with the current AAV7A1 (already enhanced by applique armor); (3) the ability to defeat future threat light armored vehicles; (4) land mobility equal to or greater than the M1A1 tank; (5) lift and carrying capacity for a reinforced rifle squad; and (6) Nuclear, Biological, and Chemical (NBC) protection for both the crew and embarked personnel (the only combat vehicle system for infantry in the U.S. inventory that does so). All of these capabilities will increase the survivability of the amphibious surface assault forces and the flexibility of future MAGTFs.

Marine Corps Position

The AAV Program will allow the Navy and Marine Corps to seamlessly link operational maneuver at sea with maneuver ashore. It provides a critical capability for OTH forcible entry -- a key component of OMFTS.

Amphibious Shipping

Discussion

Naval expeditionary forces with embarked Marines provide forward presence and flexible crisis response forces for employment in support of foreign policy objectives. These forces provide the most formidable amphibious forcible entry capability in the world. The development and maintenance of this capability is the statutory responsibility of the Marine Corps as directed by Congress in Title X. Amphibious lift requirements support the National Military Strategy and are tailored to meet real world day-to-day commitments, as well as satisfy combat surge requirements.

Twelve Amphibious Ready Groups (ARGs) are required to meet U.S. forward presence commitments in the Mediterranean, Persian Gulf, and Western Pacific. The big deck amphibious ships (LHAs/LHDs) are the heart of every ARG. Currently 11 big deck ships are in the inventory. The current program will bring the number of big decks to twelve by FY01 as another LHD is commissioned. The replacement of LHAs, which will begin to end their service life in FY11, is now under consideration.

The Mobility Requirements Study indicated the need for 3.0 Marine Expeditionary Brigade (MEB) equivalents of surge lift. Fiscal constraints, however, have limited the lift to a programmatic goal of 2.5 MEB equivalents. Current Navy shortfalls in vehicle lift capabilities are being alleviated by the maintenance of LKAs and LSTs in the Naval and Ready Reserve Force. This reduces the shortage of available lift until ships of the LPD-17 class are commissioned into service.

The shortfall in amphibious shipping, however, remains an area of concern. Early retirements and block obsolescence have sharply reduced the total number of amphibious ships. Accordingly, the LPD-17 program, designed to be the functional replacement for the lift provided by four ship classes (LPD-4, LSD-36, LKA, LST), is essential. This program provides an affordable, air-capable, LCAC-capable, wet-well ship that is optimized to meet our surge lift requirement.

Marine Corps Position

Naval expeditionary forces require a twelfth big deck (LHD) to support worldwide forward presence. Early procurement of twelve LPD-17 ships with appropriate C4I and combat systems suites is critical for the Marine Corps to meet its proposed OMFTS requirements.

The LHA class ships will approach the end of their service life beginning in 2011. In replacing the LHAs, an LHD-8 and follow on LHX class ship will better serve and meet Marine Corps requirements and will be more fiscally prudent than a service life extension program (SLEP) for the LHA ship class. It makes warfighting sense and business sense.

SAN ANTONIO Class Landing Assault Ship

Discussion

The operational flexibility of Amphibious Readiness Groups (ARGs) will be significantly enhanced with the FY02 delivery of LPD-17, USS SAN ANTONIO, the first of twelve new landing assault ships to be procured between FY96 and FY04. As a class, these ships will overcome amphibious lift shortfalls caused by the decommissioning of aging LPDs, LSTs, LKAs, and LSDs. Each 25,000 ton ship will provide a large lift



capacity for conducting OMFTS and STOM operations. These versatile ships will augment the LHD/LHA large deck amphibians with simultaneous wet well and flight deck capabilities.

The ships will each carry about 700 Marines, have a vehicle stowage capacity of 25,000 square feet, a

well deck sized for two LCACs, and a flight deck capable of simultaneous operation of two CH-53E Super Stallions, two MV-22 Osprey tiltrotor aircraft, or four CH-46 Sea Knight helicopters. The ship class will be outfitted with the Rolling Airframe Missile system for self defense and incorporates design features which present a significantly reduced radar cross section compared to previous amphibious ships. The lead contract was awarded in December 1996 to Avondale Industries with initial delivery scheduled for FY02

Marine Corps Position

Achieving projected delivery schedules and attaining operational readiness of this ship class is key to eradicating existing shortfalls in amphibious lift. Ensuring that the ship maintains a robust self-defense capability as threat systems evolve is key to survivability in the littoral environment. Expanding the offensive capability of the ship to include a limited NSFS and strike capability is worthy of examination as an option to expand the striking power and flexibility of surface forces operating in the littoral.

Maritime Prepositioning Force

Discussion

The Maritime Prepositioning Force (MPF) is a key element of the Marine Corps expeditionary capability. It permits the rapid deployment of expeditionary forces practically anywhere in the world through the linkup of personnel from the operating forces with prepositioned, seabased equipment and supplies. The three current Maritime Prepositioning Ship (MPS) squadrons, composed of thirteen ships, provide our Nation a unique geo-strategically prepositioned capability. Employment of MPS assets during Desert Shield/Desert Storm and Vigilant Sentinel against Iraq, and in Restore Hope and Continue Hope in Somalia, clearly demonstrated their utility for a wide range of military operations from general combat to disaster relief and humanitarian assistance.

Lessons learned during these operations revealed the need for improvements in MPF capabilities. Our MPF Enhancement (MPF(E)) program will add three additional ships to the MPF squadrons. These additional ships will be loaded with heavy engineer support equipment, fleet hospitals, and expeditionary airfield (EAF) sets. The EAFs will dramatically increase our combined arms combat power and reduce dependence on existing airfields or aircraft carriers. In support of this concept, Congress has appropriated a total of \$360 Million for the purchase and conversion of the MPF(E) ships. These ships are expected to enter service in FY00 and FY01.



Marine Corps Position

A MPF remains a cost-effective, proven, and relevant capability for use in responding to crises overseas. It is consistent with *“Forward... From the Sea”* and significantly increases responsiveness to contingencies and improves operational flexibility for combat, disaster relief, and humanitarian assistance operations.

Mine Warfare

Discussion

This essential warfare capability is integral to the ability of Naval forces to effectively open and maintain sea lines of communication and to operate in the littoral battlespace. A considerable array of modern mine countermeasure (MCM) systems continues to be developed and procured for MCM forces. With the recent addition of MCM command and support ship, USS INCHON (MCS-12), the Navy has improved its expeditionary MCM capability.

The Navy's Airborne MCM (AMCM) forces provide the only truly rapid deployment MCM capability available today. Currently being fielded with our AMCM forces, the enhanced minehunting capability of the new AQS-14A digital sonar processor greatly increases minehunting readiness and sustainability.

The Surface MCM (SMCM) force capability also continues to improve. The last of the fourteen MCM-1 class ships has been delivered and is in service. The Osprey class coastal minehunters are being delivered at a rate of two per year and are performing as designed. The experimental Very Shallow Water (VSW) MCM Detachment made up of Navy Explosives, Ordnance and Disposal personnel; Navy SEALs; and Force Reconnaissance Marines has proven to be a viable near term solution to critical operational shortfalls in VSW regions. The detachment is comprised of three platoons (mammals, divers, and unmanned underwater vehicles (UUVs)) and provides an immediate MCM response via fly-in or transportation on ARG shipping. This brings an essential capability to a technologically challenging environment. In the mid-term, the intent is to replace the divers and mammals with semi or fully autonomous UUVs that can detect, classify, and neutralize mines in the VSW region.

Focused science and technology and developmental efforts are producing technological solutions to difficult mine warfare problems. For VSW and surf zone regions, efforts such as the Shallow Water Assault Breaching System and the Distributed Explosive Technology Net System are in development. These systems are designed to be used together to defeat mines and obstacles from the seaward edge of the VSW to the high water mark. The Remote Mine Hunting System (RMS), is another system being supported to improve organic MCM capability. It will provide an organic, surface ship-hosted mine reconnaissance capability.

Marine Corps Position

To improve critical deficiencies in MCM, continued support of the Shallow Water Mine Countermeasure Program is crucial. Focused science and technology and developmental efforts to provide capabilities to detect, avoid, clear, and neutralize mine threats will allow us optimization of our naval expeditionary force and power projection capabilities.

Naval Surface Fire Support

Discussion

OMFTS has placed increasing demands on Naval Surface Fire Support (NSFS). Seabased fire support will be required to support the joint operations and integrate its fires with maneuver over an extended battlespace. Near and mid term initiatives to meet NSFS requirements include improving existing guns and developing Extended Range Guided Munitions (ERGM) and a rapid response land attack missile.

The modification of the current shipboard 5 inch/54 caliber gun mount, in conjunction with the development of an ERGM, will fulfill the near term NSFS mission need. The ERGM is a 5-inch projectile with an improved rocket motor and guidance system which will provide a range capability in excess of current ballistic missiles (41-63 nautical miles (NM)). The ERGM gains enhanced range and accuracy by combining the Global Positioning System and the Inertial Navigation System with ground and composite technologies. This will enable surface ships to engage targets up to 63 NM ashore. The warhead will accommodate submunition bomblets which are effective against troops and light armor.

The rapid response land attack missile must be capable of providing a quick response (less than 10 minutes) strike capability to supported naval expeditionary forces. Two systems, the Army Tactical Missile System (ATACMS) modified for ship board employment and a modified version of the Navy Standard Missile, are being considered to fill this role. Standard ATACMS missiles contain multiple submunitions which are effective against a wide variety of targets. Modifications to the Standard Missile would provide capabilities similar to that of ATACMS. Studies are underway to determine the most cost-effective solution for providing a rapid response, all-weather strike capability to naval expeditionary operations ashore.

Marine Corps Position

Current and future NSFS requirements are being addressed through munitions and hardware improvements. These improvements will enable NSFS to more effectively support OMFTS operations and give the MAGTF commander greater operational and tactical flexibility in executing missions.

Marine Corps Warfighting Laboratory

Discussion

The Marine Corps Warfighting Laboratory (MCWL) does not, as do other military labs, focus solely on technology. The MCWL charter directs it to span the entire range of military innovation to include tactical, operational, and organizational concepts as well as technical innovations. It is a concept based innovation process. Draft concepts are further developed and refined in a future plans organization. These concepts can come from a variety of outside sources such as the MCCDC Concepts Division and the Fleet Marine Force (FMF) or they can be generated internally. Whatever the source, the future plans organization will be responsible for putting enough detail into these concepts to allow effective experimentation. The future plans organization will also be responsible for exploring technologies which will support and enable the concepts. No concept will be turned over to the experimental operations organization until it has been thoroughly vetted through war gaming and modeling and simulation if appropriate.

The Marine Corps is currently in the third year of the first Five Year Experimentation Plan (FYEP). The FYEP is divided into three phases of advanced warfighting experiments: *Hunter Warrior*, *Urban Warrior*, and *Capable Warrior*. *Hunter Warrior* began in 1995 and focused on the extended, dispersed battlespace and small unit enhancements to training and capabilities.

The Marine Corps is now halfway through the *Urban Warrior*. It's focus is the development of tactics and enabling technologies for the urban battlespace. Experimentation shifted from the East Coast to the West Coast in October 1998 and will culminate with an advanced warfighting experiment in March 1999. *Urban Warrior* will be conducted in association with the USCINCPAC sponsored exercise, *Kernel Blitz* the Navy's Fleet Battle Experiment Echo, and the first Extending the Littoral Battlespace Advanced Concept Technology Demonstration.

Capable Warrior begins in April 1999 and will seek to integrate the operational concepts, tactics, and technologies validated during *Urban* and *Hunter Warriors*. Initial projections are to conduct a Marine Expeditionary Force/Fleet level experiment in the Southern California region commanded, controlled, and sustained from a sea base.

The second FYEP is under development and will conduct OMFTS experimentation emphasizing the operational impact of MV-22, AAV, and MPS follow-on for seabased logistics. In addition, special focus will be placed on Joint and Coalition experimentation and the exploration of emerging technologies in the biosciences, miniaturization (nano-technologies), and knowledge based computer assisted decision making.

A Special Purpose Marine Air-Ground Task Force (Experimental) (SPMAGTF(X)) was established as the test organization for experimentation. Its command element is stationed at Quantico and uses FMF units to round out the SPMAGTF(X) major subordinate elements during the experimental phases of the FYEP.



Marine Corps Position

The Marine Corps Warfighting Laboratory (MCWL), through concept based experimentation, serves as the focal point for the refinement of future warfighting capabilities. The MCWL develops tactics, techniques, and procedures; evaluates advanced technologies that create or enhance future warfighting capabilities; and integrates them into the Marine Corps Combat Development System.

Intelligence, Surveillance, and Reconnaissance

Discussion

Intelligence has always been the driving force of Marine Corps operations and planning, and the foundation upon which current and future operational capabilities are built. Surveillance and Reconnaissance are the means of collecting and reporting information from which intelligence is derived. Intelligence, Surveillance, and Reconnaissance (ISR) will be critical to the successful execution of *Operational Maneuver from the Sea* (OMFTS) and support to the Marine Corps of the next century.



From an intelligence perspective, OMFTS relies heavily on the MAGTF commander's ability, prior to arrival in the operating area, to gain timely, accurate, and relevant information on the enemy and operating environment in order to exploit the enemy's weaknesses and avoid the enemy's strengths. Once committed, organic ISR must provide

360 degree, three-dimensional, situational awareness for widely dispersed units, and the means to disseminate intelligence requirements in an expeditious and interactive fashion. Overall, OMFTS presents formidable challenges to organic collection, processing, and dissemination capabilities, as well as to the MAGTF's ability to leverage support from both theater and national level assets.

To meet these challenges, ISR will leverage emerging technologies and employ a combination of robust organic tactical assets and connectivity to theater and national capabilities. OMFTS will require ISR sensors that can be launched and controlled from ship, and the ability for intelligence to support planning and operations both afloat and ashore. ISR support to the Marine Corps of the 21st Century will place greater demands for new collection capabilities that are sustained, non-intrusive, and capable of complementing and operating with efforts already in place. Urban operations, for example, will require locally controlled, multifunctional aerial collection of imagery through organic manned and unmanned platforms with multiple modular payloads capable of providing continuous day/night, all weather coverage throughout the AOR. Marine Corps Signal Intelligence (SIGINT) and Counter-Intelligence/Human Source Intelligence (CI/HUMINT) will require similar innovation. While technology is an important part in developing a 21st Century ISR capability, the ongoing, multi-year program to revitalize Marine Corps intelligence personnel and training will play as critical a role.

Development and maintenance of a friendly/enemy common picture of the battlespace is critical. In order to exploit the complex and dynamic operational environment of tomorrow, commanders must maintain continuous situational awareness. As the intelligence segment of MAGTF C4I, the Intelligence Analysis System (IAS) will provide the intelligence portion of the MAGTF commander's common picture of the battlespace with connectivity to higher and adjacent headquarters.

Marine Corps Position

In recognition of the increasingly crucial role intelligence plays on the modern battlefield, the leadership of the Marine Corps is committed to providing the resources necessary to ensure Marine Corps intelligence is organized, trained, and equipped to meet the challenges of today and tomorrow.

Chemical/Biological Incident Response Force

Discussion

The 1995 Sarin gas attack on the Tokyo subway, Iraq's possession of biological weapons, and the breakdown of controls on weapons of mass destruction in the former Soviet Union reveal that the threat of biological or chemical terrorism has significantly increased. Because of the catastrophic potential chemical or biological agents pose, the DoD has focused on preventing such an incident. We must, nonetheless, be able to respond to and manage the consequences of such an attack.



In recognition of this requirement the Marine Corps activated the Chemical/Biological Incident Response Force (CBIRF) on April 4, 1996. CBIRF is manned, trained, and equipped to respond to chemical or biological terrorist incidents. As a national asset, the CBIRF was used to support the 1996 Centennial Olympic Games in Atlanta, the 1997 Presidential Inauguration, the Summit of Eight in Denver, Colorado, and the January 1998 State of the Union Address.

CBIRF is capable of rapid response to chemical or biological incidents. When such an incident occurs, CBIRF immediately deploys to the affected site to provide a number of significant initial consequence

management capabilities: assistance in coordinating initial relief efforts; security and isolation at the affected site (when authorized); detection, identification, and limited decontamination of personnel and equipment; expert medical advice and assistance; and service support assistance. Throughout its response, CBIRF will be advised by civilian and government consultants in areas related to chemical or biological incidents.

When not training, exercising, or responding to an incident, CBIRF personnel provide training to other organizations. CBIRF also continues to develop countermeasures, force protection training, and equipment support packages for deploying MEU(SOC)s. CBIRF will assist in the



development of new doctrine, equipment, techniques, and procedures for responding to a chemical or biological attack or incident. Additionally, CBIRF assists federal, state, and local response forces develop chemical and biological incident training programs. CBIRF offers a model for developing similar capabilities elsewhere within DoD.

Marine Corps Position

DoD has a limited ability to respond effectively to chemical and biological incidents. The Marine Corps contributes to the national response capability by manning and equipping a consequence management force package specifically designed to respond to terrorist initiated chemical or biological incidents. CBIRF continues to develop the concepts, doctrine, organization, tactics, techniques, and procedures necessary to remain the Nation's premier incident response force. Additionally, CBIRF remains focused on increasing its capabilities in two areas. Development of countermeasure and force protection training and equipment support packages for deploying MEU(SOC), and assistance to federal, state, and local response forces in development of internal training programs.

Technology Assessment and Development

Discussion

The Marine Corps maintains a robust Science and Technology (S&T) Program to assess and develop those technologies that can enhance maneuver, firepower, command and control (C2), logistics, training, and education. The S&T Program attempts to harness the technology needed to provide the MARFORs with the capabilities necessary to perform their specified and implied missions. The end product can then be successfully fielded to meet the requirements of the Combat Development System (CDS).

The process for determining the Marine Corps S&T Investment Strategy is integrated with the CDS. The objectives of this strategy are driven by the S&T Roundtable process. This process brings together, in one forum, the operational users and organizations that are vital to the development of capabilities. The end product of the Roundtable process is a collection of prioritized capability deficiencies and requirements.

The S&T Program is composed of two elements: the Applied Research element and the Advanced Technology Development (ATD) element. The Applied Research element is responsible for all efforts short of formal development programs. It seeks solution of specific military problems and attempts to demonstrate feasibility, develop the new technology needed for future systems, and enable improvements of existing systems to meet known and projected threats for the next decade. The ATD elements use a process by which the products of research and development can be transitioned to useful applications. Additionally, the ATD element: defines operational requirements; reduces risk; identifies options, costs, and worth; achieves user/developer consensus; and defines operational utility. It also streamlines the Milestone I Decision and in some cases, may transition directly to a combined Milestone I/II Decision. Both elements support the warfighting experimental process of the Marine Corps Warfighting Laboratory (MCWL).

Marine Corps Position

The Marine Corps will continue to conduct a Roundtable to validate S&T requirements. This forum will identify technologies, integrate program feedback from the MARFORs, MCCDC, MCWL, OPNAV, ONR, and HQMC, and leverage ongoing programs from other Services and agencies. This approach will allow the Corps to apply scarce resources to develop or adapt technologies, or do both, for the Marines of tomorrow.

Modeling and Simulation

Discussion

The Marine Corps is aggressively pursuing simulations, simulators, and advanced training devices and technologies to increase Marine Corps Total Force operational and training effectiveness.

The Marine Corps Modeling and Simulation (M&S) Master Plan (including the Marine Corps Aviation Simulation Master Plan) provides the strategic direction for M&S for ground and air combat simulation in the form of end states to be achieved by the year 2010. The M&S investment strategy has surveyed the critical technologies and assessed priorities and timeframes. Based on the strategy outlined in these guidance documents, the Marine Corps has built a foundation for M&S through 2003.

To ensure our investment complements and builds upon DoD efforts, the Marine Corps is an active participant in Joint Staff and OSD development and implementation of M&S technologies and capabilities. Our investment strategy is founded upon the joint development effort being coordinated through the Defense Modeling and Simulation Office (DMSO).

The Marine Corps is fully engaged in joint programs such as the Joint Simulation System (JSIMS), the Joint Warfare System (JWARS), and the Joint Modeling and Simulation System (JMASS).

Marine Corps Position

The Marine Corps is transitioning its training, operations, analysis, and acquisition technologies toward interoperability with the Joint M&S environment. Implementation will require major Service and DoD investment. A significant portion of our FY98 investment was the development of Marine Corps unique capabilities within the JSIMS effort. Our continued confidence to invest in M&S efforts is ensured by joint development with DoD, industry, academia, and our Allies.

Marine Corps Readiness

Discussion

Sustaining the readiness of our Corps remains our highest priority. The fiscal trends of the past years are impacting our ability to fully achieve the balance between readiness and other crucial concerns such as force modernization, infrastructure, and quality of life. Operating tempo remains high and places a strain on two key components of readiness: manpower and equipment. While our forward deployed force remains ready, some of the cost of sustaining that readiness has become excessive. Our current challenge is to maintain our traditional high state of readiness, to be good stewards of our equipment, and to take care of our people. In this regard, the current FY00/01 budget proposal allows for significant improvement of our most pressing needs which includes ground equipment, aviation and infrastructure. To meet tomorrow's challenges, however, and enable our Marine Corps to remain *"most ready when the Nation is least"* adequate funds for our modernization program must be addressed.

While solution to our readiness concerns will not be achieved overnight, recognition of this reality has caused us to aggressively pursue every opportunity to maintain readiness. We have bought used items instead of new, such as recapped tires, remanufactured major aviation assets such as AV-8B and the AH-1W/UH-1N, replaced ground equipment with cost effective options, to include the 5 ton truck, the HMMWV, and 155 millimeter howitzer, and finally, we have implemented improved business practices which will enable us to free up resources to apply toward modernization. In the long term, our modernization plan will help us to replace antiquated and worn out equipment with new systems whose ease of maintenance and support will contribute to sustained high readiness rates in the 21st Century.

The Marine Corps recently implemented several new initiatives/reforms to increase our readiness from within. For example, we conducted two Force Structure Reviews of the Active and Reserve Components to define the most effective, relevant, and attainable force structure for the Marine Corps. These reviews enable the reallocation of Marines to increase manning in our operating forces. This initiative has increased readiness in our front line units.

We have implemented our Cohesion initiative whereby we form teams of entry level Marines by occupational specialty, at the skill producing school, and assign them as a team to a unit, with the intent that they remain with that unit for the duration of their initial enlistment. By keeping Marines together, our units will be more ready to fight and win. To date we have instituted Unit Cohesion in all 24 infantry battalions and 30 of our entry level occupational skills. We plan to expand implementation of this program throughout the Corps.

We also implemented the Marine Aviation Campaign Plan to improve aviation safety, training, and the material condition of our aircraft. This reform will lead to improved readiness in Marine aviation thereby increasing the readiness of the MAGTF.



Marine Corps Position

Each and every unit in the Corps remains either forward deployed or at the ready to deploy, fight, and win anywhere, against any foe. Our modernization plans build a Corps for the 21st Century ensuring that we will meet the requirements associated with being our Nation's force in readiness. While the Corps is making great progress in developing new and innovative ways to increase readiness, continued resource support is needed to mitigate the effects that several years of high operational tempo has had upon our units and their equipment.

Making Marines -- Transformation

Discussion

The Corps has strengthened the way it makes Marines, builds self-confidence and strength of character, and instills a common set of values. The Corps goal is not only to produce high quality Marines, capable of winning our Nation's future battles, but also to make better Americans. The transformation of young men and women into Marines challenges them mentally, morally, and physically and occurs in four phases: recruiting, recruit training, cohesion, and sustainment.

Our recruiters begin the transformation process by recruiting the highest quality men and women. The Delayed Entry Program allows recruiters to prepare recruits for the rigors of recruit training and to expose them to our core values of Honor, Courage, and Commitment.

Recruit training has been modified to expand the influence of drill instructors, as well as the amount and quality of time they spend mentoring and setting the example for their recruits. Recruit training is a twelve week program for both males and females. The Corps has retained our tried and true tough, demanding recruit training program, but has enhanced it to ensure the Marines we make are capable of prevailing in future *"three-block wars."* The recruit training program of instruction has been significantly realigned to provide the drill instructor additional tools to transform America's youth into Marines. The realignment consolidated Basic Warrior Training, previously conducted at recruit



training, with Marine Combat Training (MCT) at the Schools of Infantry, producing an improved training continuum of combat skills training for non-infantry Marines.

The culmination of recruit training is the *"Crucible,"* an intense field training exercise designed to build unit cohesion, reinforce our core values, and complete the transformation from recruit to Marine. The *"Crucible"* is the defining moment of the recruit training experience. As a right of passage, the *"Crucible"* is a 54-hour ordeal that tests the mettle of every recruit. The physical and mental challenges are intensified by sleep and food deprivation. The *"Crucible"* focuses

on six major field events and is augmented by eleven challenging “Warrior Stations.” Throughout this rapid paced exercise, emphasis is placed on the importance of teamwork in overcoming adversity and adaptive problem solving. The teams of recruits, under the leadership of their drill instructor, succeed as a team. The experience pushes recruits to their limits and culminates the transformation process.

Following recruit training, newly forged Marines are assigned into teams under a new program called “Cohesion.” This program builds and assigns the recruits into teams from the “Crucible” through initial military occupational specialty training and then into the Fleet Marine Force (FMF). Unit Cohesion is designed to develop team integrity through the assignment of Marines who will remain together throughout their first term of enlistment, building bonds and developing confidence in one another. Achieving this objective requires synchronization of team assignments with deployment cycles so teams spend as much time as possible together in a unit. Ideally, first-termers will spend their entire enlistment with one unit. The focus of initial efforts is on ground combat units, but will ultimately be implemented throughout the Marine Corps.



The transformation process is sustained through the reinforcement of core values in the FMF and by holding Marines strictly accountable throughout their careers. This program provides stronger, smarter, and more capable Marines who have the maturity and flexibility to meet the challenges of the 21st Century battlefield.

Marine Corps Position

The recruit training process has been strengthened to better prepare Marines for the challenges of the 21st Century. The resulting “Transformation” produces better trained Marines with a stronger appreciation for the Marine ethos. More cohesive units improve our readiness posture and combat capabilities. The daily performance and conduct of our Marines reflect the values of our Corps and the ideals of the Nation they serve.

Recruiting

Discussion

The Marine Corps Total Force depends on quality recruiting and the steady flow of new enlisted and officer accessions. During FY98, the Marine Corps continued its success by exceeding all of its assigned accession goals, as we have every month and every year since June 1995.

To continue our success, the Marine Corps must ensure it maintains an adequately resourced quality recruiting team. To this end, we continuously evaluate and implement QOL initiatives for our recruiters and search for new and innovative advertising to reach our target market.

The warfighting requirements of the 21st Century mandate we recruit the best and brightest of America's youth. They must be physically and morally fit, intelligent, and comfortable with high technology. Quality recruits mean enhanced performance, stabilized attrition, and improved readiness.

The future environment will continue to test the Marine recruiting force. The market of recruitable youth age 17 to 21 years has increased only slightly while their propensity to enlist has declined. Recruiting is further impacted by low unemployment and a continued growth in college enrollment. Accession missions will continue to remain relatively constant.

In spite of the challenges ahead, we look to the future with great hope and optimism. The quality of the individual Marine has never been higher. With the support of the American people; our enduring image; and our continued emphasis on our core values of Honor, Courage, and Commitment, the Corps will continue to attract sufficient numbers of high quality, young Americans with the desire to be United States Marines.

Marine Corps Position

Facing the most challenging recruiting environment in the all volunteer force history, the Marine Corps continues to exceed DoD and CMC quality standards and is on track to accomplish this feat again in FY99. In FY98 96 percent of our recruits were high school graduates, and over 66 percent of them scored in the upper half of the Armed Services Vocational Aptitude Battery. Our recruiting emphasis continues to focus on the highest quality young men and women that will build the Corps of tomorrow, as the individual Marine continues to be our most precious asset. The Marine Corps remains committed to a strong and adequately resourced recruiting program. Our goal for the 21st Century -- smart recruiting for a more capable warrior!

Gender Segregated/Integrated Training

Discussion

The purpose of recruit training is simple - to make Marines. The young men and women who arrive at the recruit depots are generally away from home for the first time. They have brought with them diverse perceptions of right and wrong and varied appreciations of permissible behavior. Their experiences with authority figures may have been good or bad, proper or improper or even abusive. The only thing they have in common is their desire to be a Marine. By capitalizing on that desire, recruit training transforms these individuals into Marines imbued with a common set of values and standards.

Although recruit training teaches basic military skills such as physical fitness, close order drill and marksmanship, it does not train the recruit to fight and survive in combat - that comes later at Marine Combat Training (MCT). Instead, recruit training is more truly a socialization process. Civilians are transformed into basic Marines. It is a physically and mentally challenging ordeal, and one requiring constant supervision. Drill instructors control and manage the transformation of their recruits through constant interaction. They teach core values, institutional rights and wrongs, and what constitutes proper authority. This teacher-student/father-son/mother-daughter relationship is the heart and soul of the recruit training experience.

In gender segregated recruit training, the drill instructor provides impressionable young men and women strong, positive role models. For women it also removes the stereotype that only men can be authority figures. They see strong female role models not only in control of them and their group, but also positively interacting with other male drill instructors. Very early in their training cycle, women recruits come to realize that they are expected to be strong, assertive leaders. Gender segregated training provides an environment free from latent or overt sexual pressures, thereby enabling recruits the opportunity to focus on, and absorb, Marine standards of behavior.

Additionally, gender segregated training takes into consideration the difference in physical strength and endurance between male and female recruits. The recruit training physical conditioning program has two primary objectives -- to achieve and maintain a peak level of physical fitness and to build confidence. Due to strength and endurance differences, initial physical fitness standards are different for male and female recruits. Fully integrated recruit training with a common standard would result in either lowering the male standards or increasing the female failure/attrition rates -- neither of which is acceptable.

The case for gender integrated training is often built on the *“train as we fight”* thesis which argues that men and women should train in gender integrated units because that is the way they will fight. This argument generally misses the point that the Marine Corps, unlike the other services, has a block of training entitled

MCT, between recruit training (socialization) and military occupation skill training. It is at MCT that newly forged Marines are actually taught combat skills, and this training is conducted in partially integrated units at MCT-East, Camp Lejeune. Women Marines undergo MCT only at Camp Lejeune because the smaller number of female accessions only justifies a single site. Another important distinction is that MCT occurs after the intense transformation process that produces Marines with strong and clear standards of behavior, and the values, mental and physical toughness, self-reliance, and confidence essential to earn the title "*Marine*."

After Transformation, Marines are then, and only then, placed in a combat training environment. And most appropriately, it is in this expeditionary training environment that they will be organized into gender integrated units for the first time. At MCT, both male and female Marines will be taught and led by male and female Marine Officers and Non-Commissioned Officers. Both male and female Marines are exposed to a gender integrated chain of command and the professional conduct between male and female leaders. In tough field conditions they see both male and female leaders in action. The objective is for male and female Marines to see themselves as members of the same team, committed to performing the same tough duties, mentally and physically, in the same demanding environment. From that experience they develop an appreciation of each other as professionals.

Marine Corps Position

The Marine Corps will continue to make Marines that are tough, dedicated, and imbued with the values of the Corps -- Honor, Courage, and Commitment. Throughout this process we will emphasize the dignity of, all Marines. Current Marine Corps policy regarding gender segregated recruit training is sound and is supported by the Kassebaum Baker Congressional Committee chartered to evaluate this policy across the Services. Marine Corps gender integrated training is consistent with the "*train as we fight*" approach and commences at MCT.

Quality of Life

Discussion

The Marine Corps is committed to efficient, effective and equitable management and delivery of Quality of Life (QOL) programs. Taking care of our Marines and their families is inherent to the ethos of the Corps and QOL is a high priority.

QOL programs directly impact readiness and operational responsiveness. As the Nation's force in readiness, maintaining the highest levels of operational readiness and responsiveness is paramount. Marines who know that they and their families are being taken care of are more likely to be focused on the job at hand -- combat readiness. From a long term perspective, QOL has a positive effect on recruiting, retention, and motivation to serve. These programs are tools for commanders to enhance, develop, and support Marines on an individual or unit basis.

The Commandant's QOL program priorities are: pay and allowances; medical care; housing; a viable retirement program; and servicemember, family, and community support programs. These programs are consistent with those of DoD and the Marine Corps has committed significant resources to them.

The Marine Corps QOL Master Plan outlines our vision for the future. The vision of the QOL Master Plan is supported by the Personal and Family Readiness Division organizational structure which was implemented at Headquarters Marine Corps in 1998 and is now being replicated at Major commands. Merging family, child care, and other human resources programs with the Morale, Welfare, and Recreation Office establishes one advocacy voice for QOL and gains significant operational efficiencies and synergies within current funding constraints. The focus of *"One Corps, One Standard"* is to



provide an equitable level of QOL for all Marines and their families wherever they are stationed. Additionally, the strategic direction is to embrace prevention and provide healthy lifestyle choices and models which encourage positive and rewarding decisions thereby obviating the need for reactive intervention and treatment. Initiatives such as Semper Fit, New Parent Support Program, Marine Corps Family Team Building, and the Single Marine Program are premier examples of this proactive, prevention focused effort. The Marine Corps QOL Working Group is the principal integrator and process owner for QOL reporting to the QOL Executive Steering Committee. Overall standards are developed and commanders, with their knowledge of local situations and circumstances, are charged with caring for the Marines they command.



Marine Corps Position

The Corps has made a significant and continuing commitment to improved QOL to sustain and support readiness. Implementation of the Personal and Family Readiness Division Model with focus upon equity and prevention enables the Marine Corps to continue to provide improved QOL programs and services.

Marine Corps Total Force

Discussion

Our ability to meet the demands of National Military Strategy and CINC requirements is directly related to both the size and manning of our operational forces. As the result of the QDR and a subsequent Total Force Structure Review, the Marine Corps will see FY00 endstrength stabilize at 172,148 in the Active Component and 39,624 in the Reserve Component. We will however continue to strive to create efficiencies in the manpower process so we can optimize manning in the Fleet Marine Force and Supporting Establishment. By proactively managing both enlisted and officer populations we will ensure the Marine Corps is providing the right experience level in the right occupational field so commanders can accomplish their missions in the 21st Century.



The highly sophisticated operating environments in which Marines are employed require resourceful, innovative, and well educated individuals. The men and women we recruit are among the finest our Nation has to offer. Currently over 96 percent of our enlisted recruits are high school graduates and 66 percent score above the national average on the Armed Forces Qualification Test. Similarly, our officer candidates are among the most highly motivated and best qualified graduates of America's colleges and universities.

A manpower intensive organization, the Marine Corps continues to believe the individual Marine is our most effective weapons system and that is where we invest almost 60 percent of our FY00 annual budget. Operating with just 4 percent of the DoD budget, we continue to provide 12 percent of our Nation's military personnel. We do this with the highest ratio of combatants to combat service support personnel anywhere in the DoD. Our emphasis on robust operating forces and lean support forces is

visible both in our Active and Reserve Components and our officer-to-enlisted and military-to-civilian ratios.

Our force is young and our grade structure is lean. With one officer for every 8.6 enlisted, the Marine Corps has the lowest ratio of all the Services. Over 67 percent of our enlisted force is the grade of Corporal or below and the average age is 25. About 67 percent of our officers are Captains and below with an average age of 33.

The Marine Corps Reserve continues to play a vital role in our Total Force by providing trained and qualified units and individuals available for active duty in times of war, national emergencies, and other times as national security may require. The Marine Corps continues to integrate Reserve Component training and professional military education with those of the Active Component. During FY98, Marine Reservists worked and trained alongside their Active counterparts in numerous worldwide operations and exercises including: Operations *Anvil II/Desert Thunder*, *Joint Guard*, *Strong Resolve*, *Cobra Gold*, *Baltic Challenge*, *Foal Eagle*, and *Ulchi Focus Lens*. When requirements caused a vacancy in the Commanding General position at Marine Corps Recruit Depot, Parris Island for two months, a reserve general officer was activated to fill the vacancy. A retired reserve general officer was also recalled to active duty for two months as the Acting Director, Reserve Affairs Division HQMC. Across the spectrum of command and conflict, the Marine Corps Reserve effectively augments and reinforces the Active Component creating a Total Force that is most ready when the Nation is least ready.

In the event of mobilization, a population of over 20,000 retired Marines may be called upon to fill preassigned billets throughout the CONUS bases and stations. Their experience, skills, and dedication to Corps and Country can be counted on in case of national crisis.

Our civilian personnel are employed in a wide variety of professional, technical, trade, and administrative functions. These "*Civilian Marines*" provide essential continuity in their functional areas and are a crucial component of the Marine Corps Total Force. With a population of just 18,000, the leanest in DoD, their manning of the Supporting Establishment allows Marines to fill billets in operational units thus enhancing training, readiness, and sustainability.

Marine Corps Position

The Marine Corps has built an efficient Total Force. Maintaining our expeditionary readiness is dependent on high quality people, including both Active and Reserve Marines, as well as our civilian personnel. These individuals are the cornerstone of our Corps. Their training, leadership, and quality of life will continue to be of the utmost importance.

Marine Corps Security Forces

Discussion

During 1998, the Commandant of the Marine Corps and the Chief of Naval Operations agreed to reorganize Marine Corps Security Forces to dramatically enhance Naval anti-terrorism/force protection globally and bolster the Department of the Navy's reputation as anti-terrorism/force protection experts. The Marine Detachments (MARDETs) afloat, previously serving aboard aircraft carriers, were dis-established in order to form a second Fleet Anti-Terrorism Security Team (FAST) Company within the Marine Corps Security Force Battalion. The establishment of the Second FAST Company provided an additional five platoons, bringing the total number of FAST platoons to eleven.

Recognizing the capability that FAST provides to Navy forces and installations overseas, the Marine Corps recommended the establishment of the FAST Deployment Program (FDP). The FDP provides select Fleet Commanders-in-Chief (CINCs) and/or Fleet Commanders forward deployed FAST platoons on six month unit deployments. There are three deployed FAST platoons participating in the FDP year round. One each is assigned to COMUSNAVCENT, CINCUSNAVEUR, and CINCPACFLT. The utility of the FDP was recently highlighted when two of the three

platoons were called upon to provide security in the aftermath of the East African embassy bombings. The platoon from NAVCENT deployed to Nairobi, Kenya, and the platoon from NAVEUR deployed to Dar es Salaam, Tanzania. Additionally, one of the two FAST platoons maintained on alert status for the FDP platoon that responded to the Kenyan blast.



Marine Corps Position

Highly skilled and responsive security forces are the best solution to today's volatile asymmetric security environment. Rapidly deployable and well equipped FAST platoons, such as those of the FAST Deployment Program, can be deployed in advance of, or in response to, a crisis and provide a significant enhancement to the force protection capabilities of the Fleet CINCs. The Marine Corps remains committed to supporting naval security as we prepare to face the security challenges of the 21st Century.


Marine Corps Infrastructure

Discussion

The Marine Corps infrastructure consists of 17 major bases and stations in the United States and Japan. In keeping with our expeditionary nature, these installations are strategically located near air and sea ports of embarkation, and are serviced by major truck routes and railheads, to allow for the rapid and efficient movement of Marines and material.



Infrastructure development planning is designed to provide facilities for the efficient training of our air/ground combat teams while minimizing excess or redundant capacities. The obvious advantages to a lean infrastructure are efficiency and cost-effectiveness. Challenges arise in providing and maintaining infrastructure that can meet changing mission requirements in the face of increasing external pressures and declining fiscal and manpower resources. These challenges include:

 ***Environmental Compliance.*** Our Nation has crafted a strong environmental code of conduct structured on a wide range of federal, state, and local laws and strengthened through increased regulatory agency scrutiny and enforcement. Due to the nature of the Marine Corps

mission, these requirements present significant challenges to us. Through inspired leadership at all levels, hard work, Marine tenacity, and our approach of viewing environmental requirements as a way of doing business, we have made significant strides to achieving our ultimate goal of strict compliance with all applicable environmental requirements while performing our mission. Today, Marines at all levels contribute to environmental goals by simply performing their jobs and being aware of potential environmental impacts. In this era of declining resources, our next challenge is to continue our environmental progress and protect our ability to train and operate while reducing overall costs. Pollution prevention and natural resource management are strategies being pursued to achieve goals.

▣ ***Encroachment Control.*** Once located in remote areas, many of our installations are now surrounded by urban, industrial, residential and mining development. This growth of the civil sector is often accompanied by pressure for access to our resources or demands to curtail our operations to make them more compatible with surrounding land uses. Additionally, regulatory requirements such as endangered species protection continue to erode unlimited access to areas needed for training. We maintain an aggressive encroachment control program which has resulted in win-win solutions to meet these demands while not degrading the mission effectiveness of our installations. Encroachment takes many forms and requires constant vigilance to ensure the continued viability of our installations and access to our training ranges.

▣ ***Infrastructure Rightsizing.*** The Marine Corps 1997 U.S. and Japanese readiness infrastructure investment totals more than \$25 billion. Routine maintenance and repair protect this investment through its life cycle, but eventually facilities must be recapitalized. Recapitalization of an infrastructure investment of this magnitude once every 100 years would necessitate a Military Construction, Navy (MCON) and Japanese Facilities Investment Program (JFIP) funding stream of \$250 million annually. This is not achievable within current or projected budgets. To offset this deficit, we are aggressively pursuing several initiatives to downsize facilities at our bases and stations. We must optimize our infrastructure usage by matching requirements to assets, no more-no less. Computerized master planning is a viable resource in this regard. We are ensuring maximum use of our best infrastructure and reducing our inventory by demolishing our least energy efficient and most maintenance intensive facilities. In addition, we are examining the ways we do business to reduce the need for facilities to support the operating forces; such as, prime vendor delivery of goods instead of maintaining a warehouse of material. We are looking to other services, agencies, and the commercial

sector to provide needed facilities. Finally, we are using new legislative tools, which provide greater access to public/private ventures, to reduce our requirement for facilities.

❑ **Base Operating Support (BOS).** Military readiness requires an efficient and well managed infrastructure with quality facilities and high quality of life features. In addition to capital improvements, we must invest in their long term operation, maintenance, and repair. Failing to provide adequate resources will result in an eventual degradation of quality of life, operations, and mission accomplishment. Our limited funding for BOS must be balanced to keep the backlog of maintenance and repair from growing, comply with environmental requirements, pursue aggressive energy savings programs, and pay for required services. These are the costs associated with responsible ownership. We are working to meet these challenges through a variety of means, including technological and business process changes to increase productivity. We are also exploring new ways to outsource and finance facility requirements. Our BOS programs require continued visibility and support throughout the budget process.

❑ **Civilian Manpower.** Installation management requires a diverse staff possessing skills ranging from the electrical and plumbing trades to professionals trained in environmental science and law. We have actively pursued more efficient business practices, including outsourcing various functions and using low maintenance technologies. This is evidenced by the fact the Marine Corps has the lowest ratio of civilian to military employees within DoD. We continue to examine this area for other efficiencies. Care must be exercised, however, to ensure that reducing civilian personnel does not impact our ability to provide a sufficiently skilled work force to adequately maintain our infrastructure. Support at all levels is required as we analyze this invaluable asset.

❑ **Base Realignment and Closure (BRAC).** The limited size and lack of redundancy within our Supporting Establishment present certain advantages and disadvantages. The efficiencies associated with a small physical plant strategically located in support of our air-ground teams are truly beneficial. During this period of force and base structure reductions, however, finding the means to further reduce infrastructure capacity while providing adequate facilities to meet the needs and maintain the integrity of our MAGTF organizations is difficult. Decisions made during 1995 as part of the last round of base realignments and closures provided the infrastructure blueprint for the Marine Corps into the next century. Implementing these decisions is requiring significant up front costs to achieve long term economies. New technologies, changes in doctrine and

training, a greater focus on jointness, and the fielding of new equipment necessitate our continual assessment of capacity requirements and resultant planning for change. Effecting these changes will require the continued commitment at all levels within the DoD and the Congress.

☐ *Quality of Life.* We are a people intensive service. A Supporting Establishment that helps attract and retain our outstanding Marines and Sailors requires a commitment to their quality of life by providing housing, recreational amenities, child care facilities, family services, community support centers, and more. We have significant shortages of adequate housing for both bachelor and married service members. Our Bachelor Housing Campaign Plan proposes aggressive strategies for building new barracks and quickly revitalizing barracks that should be retained. Our Family Housing Campaign Plan is a broad based approach to maintaining, repairing and improving our core family housing inventory, and reducing housing deficits in high cost areas through implementing traditional and creative financing mechanisms. In addition to housing, a commitment to excellent MWR and other Marine Corps community service programs will be instrumental in recruiting and retaining our Marines. We will maintain this commitment to quality of life infrastructure improvements through the collective leadership skills and managerial abilities resident in the operating forces and the Supporting Establishment. This commitment to our people will result in improved readiness and ensure an excellent Supporting Establishment for future generations of Marines.



Marine Corps Position

We have a long range plan and specific goals to provide an economical infrastructure. Our goal is to minimize redundancy and improve our training capabilities while providing the necessary quality of life features and environmental stewardship of our resources. Our planning objectives are manifested in our vision of an infrastructure unparalleled in capability and efficiency to support America's expeditionary force in readiness.

Precision Logistics

Discussion

Marine Corps logistics faces a myriad of strategic, operational, and tactical level requirements. The National Performance Review, DoD Logistics Strategic Plan, Focused Logistics, Logistics Management Initiative, Defense Reform Initiatives, and the Joint Logistics Warfighting Initiative are just a few examples of strategic level requirements. Typically, warfighting CINCs influence operational level requirements to include the deployment of MARFORs and the development of operational concepts such as *Operational Maneuver from the Sea* (OMFTS). At the tactical level, Marine Corps logistics is focused on requirements to improve equipment readiness, logistics response time, combat service support capabilities, sustainment, and decrease logistics footprint. To reshape and direct all levels of Marine Corps logistics, the Precision Logistics process was developed to define the priorities and direction for logistics process improvement.

Precision Logistics focuses on all levels of warfare. One of the primary efforts is to improve logistics processes in support of OMFTS and other emerging warfighting concepts such as Ship To Objective Maneuver (STOM). These concepts cannot be implemented unless there is a flexible, responsive, and consistent logistics capability to support them. The corresponding logistics capability for OMFTS is Seabased Logistics which is the indefinite sustainment of forces ashore from a sea-based platform. Undoubtedly, this will be our most challenging logistics capability to implement; however, the tools we gain will significantly enhance all types of logistics operations. In order to achieve this, Marine Corps logistics must evolve its core capabilities - an evolution impeded by logistics processes and legacy information technologies that were designed and implemented in the 1960s and 1970s.

In addition to reengineering core logistics capabilities such as logistics information technology, equipment readiness, distribution, and combat service support, we will experiment with and implement complementing capabilities such as third party logistics, and we will pursue strategic alliances that will add great value to how we perform logistics in the 21st Century. These unique capabilities involve using non-government sources to provide logistics support for those requirements that are not inherently required to directly support warfighting operations. They are, and will be, implemented in such a manner that they are value added and not a detriment to our operational logistics capability.

Marine Corps Position

Marine Corps logistics has the basic core capabilities to enable our operating forces and Supporting Establishments to successfully meet the challenges of OMFTS, STOM, and other emerging concepts. Through the Precision Logistics process the Corps will be able to evolve these capabilities to be more flexible, responsive, and consistent.

Business Practice Reform

Discussion

The Marine Corps is committed to supporting the Secretary of Defense Defense Reform Initiative (DRI) and the DON Revolution in Business Affairs which are designed to apply those business practices that American industry has successfully used to become more lean, flexible, and competitive. The resulting savings will help fund Marine Corps modernization including a new generation of weapons systems needed to ensure future victories. Initiatives are being developed in acquisition, facilities management, and reengineering.

The Marine Corps is actively involved with the DoD effort to increase/leverage competition within the government and the private sector to improve services and save money. These initiatives are a key point of the DoD and DoN reform process which calls for a comprehensive review of inherently governmental functions and the privatization of utility systems. We are currently conducting studies to identify internal commercial functions that can be competed and outsourced. These include a complete review of our base, station, and depot maintenance functions, and are currently pursuing public vice private housing initiatives at Albany, 29 Palms, Cherry Point, and other installations. The Corps expects to achieve significant savings from these efforts beginning in FY00.

Regarding acquisition, the Marine Corps, in conjunction with DoD, has embraced total life cycle ownership cost management concepts. This effort is designed to reduce weapon systems costs to sustain modernization. Initiatives are being pursued to integrate development and production of systems with the management of operations and support. This would enable tradeoffs between investments in development in order to reduce support costs. Other reform initiatives include: multi-year procurements, contractor incentives, reduced logistics response times, new cost tools to balance cost with performance (cost as an independent variable), and an improved financial system to capture these costs. Along these lines, the Marine Corps is the DoD model for the development of auditable financial statements and is aggressively pursuing paperless contracting.

Marine Corps facilities management is being improved by eliminating inadequate and excess buildings and structures. We plan to demolish more than three million square feet by FY00 which will result in significant savings in space and operations and maintenance costs and improving safety and appearances.

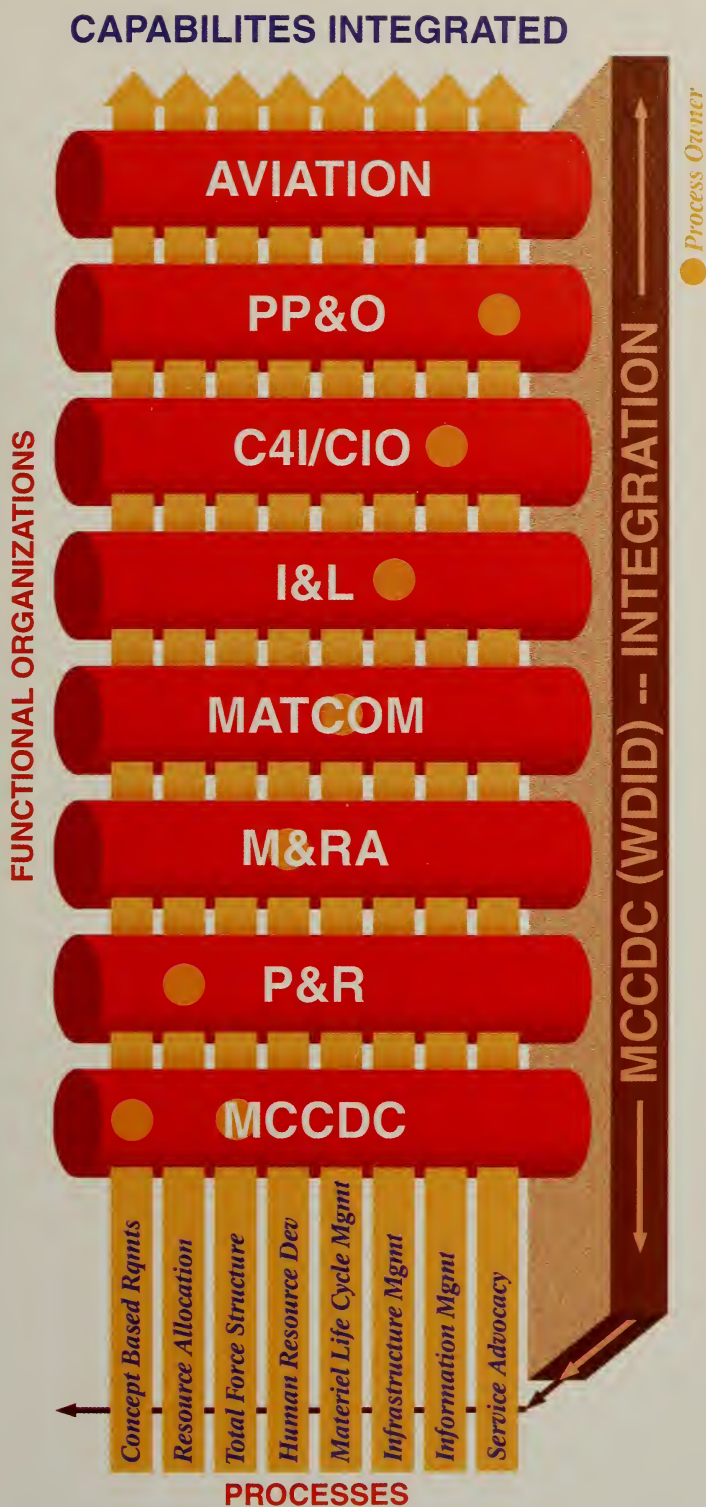
Finally, the Marine Corps Continuous Process Improvement Program (MCCPIP), introduced in 1992, continues to assess key management processes and functions to achieve improvements and efficiencies. Successful efforts at Headquarters Marine Corps have resulted in the consolidation of programming and resource management functions, formalization of a force structure management process, and a realignment of our human resources development process. MCCPIP has used analytical tools for the development of the Marine Corps concepts and capabilities that provide a concrete foundation upon which to build future requirements. At the Marine Corps Combat Development Command, the concept based requirements process has been reengineered to align requirements to resources and to connect planning and programming allowing a more effective and efficient utilization of resources. The resultant effort has codified the Service headquarters role of man, train, and equip into a well defined combat development system.

Marine Corps Position

The Marine Corps will continue to aggressively support Defense and DoN business reform by identifying, implementing, and using innovative tools and techniques to improve our business practices. Our business improvement initiatives will build upon existing efforts and expand across the entire enterprise. Through ongoing cooperative networking and business improvement efforts we will be able to accomplish our mission more efficiently and economically.



Marine Corps Combat Development System



Concept



Chapter

Current Operations

The United States Marine Corps is a unique American military organization. Marine forces operating as part of a Naval Expeditionary Force are a highly flexible, cost-effective means of maintaining global U.S. presence. The Marine Corps stands ready to deploy needed forces or reinforce with Maritime Prepositioning Forces (MPFs) quickly, effectively, and with sufficient flexibility to deal with diverse and sometimes multiple situations. Their forward positioning, mobility, and agility to assume a variety of alert postures make Naval Expeditionary Forces an ideal instrument for crisis response. This tremendous capability is unique to the Navy-Marine Team. With the continued emphasis on Joint and Combined operations, the Navy-Marine Corps Team will play an increasingly vital role in our Nation's security and crisis response capability.

Chapter

Current Operations

The United States Marine Corps is a unique American military organization. Marine forces operating as part of a Naval Expeditionary Force are a highly flexible, cost-effective means of maintaining global U.S. presence. The Marine Corps stands ready to deploy needed forces or reinforce with Maritime Prepositioning Forces (MPFs) quickly, effectively, and with sufficient flexibility to deal with diverse and sometimes multiple situations. Their forward positioning, mobility, and agility to assume a variety of alert postures make Naval Expeditionary Forces an ideal instrument for crisis response. This tremendous capability is unique to the Navy-Marine Team. With the continued emphasis on Joint and Combined operations, the Navy-Marine Corps Team will play an increasingly vital role in our Nation's security and crisis response capability.

Current Operations

Throughout 1998, the Navy-Marine Corps Team demonstrated our National Security Strategy across the full spectrum of operations in support of U.S. theater commanders. Whether supporting implementation of the Dayton Peace Accords in Bosnia, as nation builders in Haiti, enforcing the southern no-fly zone in Iraq, or in a more conventional role as vigilant deterrents to Iraqi aggression, the Navy-Marine Corps Team has repeatedly demonstrated relevance in a dynamic world. The versatility and responsiveness of naval expeditionary forces as a forward deployed presence was repeatedly demonstrated by the execution, or staging for the execution, of Noncombatant Evacuation Operations (NEOs) in West Africa, East Africa, as well as in Albania and Kuwait.



Finally, in response to Saddam Hussein's failure to comply with United Nations disarmament requirements, Marines from the 31st MEU as well as VMFA-312, aboard the USS ENTERPRISE, participated in Operation Desert Fox. The operation consisted of airstrikes against Iraqi positions as well as the defense of Kuwait (in the event of Iraqi incursions

into Kuwait). The Ground Combat Element (GCE) of the 31st MEU, BLT 2/4, occupied a battle position in the defense, while the Aviation Combat Element of the 31st MEU remained aboard Amphibious Ready Group shipping in support of the GCE. Aircraft from VMFA-312 were used in strikes against Iraqi positions from the USS ENTERPRISE.

Continually forward-deployed, supporting the combatant commanders presence requirements, and ready to respond to crises, the Navy-Marine Corps Team has been fully engaged around the globe.

Exercises

Participation in realistic, worldwide exercises--whether Service, Joint, or Combined-- contributes to the Marine Corps remaining a ready, relevant, and capable force. Essential Service exercises -- such as Combined Arms Exercises (CAX) in Twentynine Palms, California; Mountain Warfare Training Center (MWTC) courses in Bridgeport,

California; Weapons and Tactics Instructor (WTI) courses in Yuma, Arizona; and Marine Expeditionary Unit (Special Operations Capable) (MEU(SOC)) workups on the United States East and West Coasts, and in Okinawa, Japan--develop individual and collective training and test operational skills.

Through Joint and Combined exercises--such as *Alexander the Great* in Greece; *Arctic Warrior* in Norway; *Bright Star* in Egypt; *Cobra Gold* in Thailand; *Cooperative Osprey* in Camp LeJeune, North Carolina; *Maritime Combined Operational Training (MARCOT)/Unified Spirit* in Newfoundland, Canada; and *UNITAS* in many South American countries--the Marine Corps improves its ability to rapidly project forces globally and provides highly trained, interoperable forces to the geographical combatant commanders.

During 1998, Marines participated in over two hundred Service, Joint, and Combined exercises. These exercises are categorized as live fire, field training, command post, or computer assisted. Marine participation levels ranged from selected detachments (from handfuls of skilled specialists to trained battlestuffs) to a Marine Expeditionary Force Forward (MEF(Fwd)) in excess of two thousand troops. In addition to the



invaluable training opportunities in diverse locations around the world, these exercises also reinforce our role as operationally ready, forward deployed "soldiers from the sea".

CY98 USMC Operations Matrix

DATE	OPERATIONS	DESCRIPTION	FORCES	LOCATION
Apr 96-Present	U.S. SUPPORT GROUP-HAITI	Security, Counter Intelligence (CI) and Engineer Operations in support of U.S. Support Group-Haiti	Dets II MEF	Haiti
Oct 92-Present	FULL ACCOUNTING	Support of national efforts to account for POWs/MIAs from the Vietnam War	Dets from 1st MAW and 3d FSSG	Southeast Asia
Jul 96-Present	DESERT FOCUS	Conducting CI Force Protection Operations in support of CJTF-SWA	Dets I MEF	Southwest Asia
Jan 98-Present	LASER STRIKE	Counterdrug radar and communications support	Det, MACG-28	South America
Feb-Jun 98	DESERT THUNDER	Force deployments in support of UN resolution enforcement and potential strikes against Iraq	24th MEU(SOC)/ GUAM ARG 11th MEU/ TARAWA ARG 1 MEF ADVON 1MEF FWD CE (-) OPP/SLRP	Kuwait, Arabian Gulf
Feb-Apr 98	NOBLE RESPONSE	Humanitarian assistance/ disaster relief efforts. JTF-KENYA provided air land/ air delivery support of food stuffs	JTD-Kenya Dets, I MEF and 3d MAW (VMGR-352)	Mombasa and Garissa, Kenya
Apr-Aug 98 Sep-Dec 98	OPERATION NORTHERN WATCH	Aerial refueling support to CSAR helicopters in support of No-Fly Zone (NFZ) enforcement over Northern Iraq	Dets, VMGR-252	Incirlik, Turkey
Dec 98-Feb 99		Electronic Warfare support in support of NFZ enforcement	VMAQ-1 (-)	
Apr 98	AUBURN ENDEAVOR	Military operations to recover and package fresh and spent Highly Enriched Uranium (HEU) at reactor site Tblisi, Georgia; Deliberate evacuation of HEU material to designated site in Scotland	Det, II MEF	Tbilisi, Georgia and Scotland, UK
May 98	BEVEL INCLINE	Preparation for possible Noncombatant Evacuation Operation (NEO) in Jakarta, Indonesia (Not executed)	31st MEU(SOC)/ BELLEAU WOOD ARG	Indonesia
Jun 98	OPERATION SAFE DEPARTURE	Air only NEO in Asmara, Eritrea	11th MEU(SOC)/ TARAWA ARG	Asmara, Eritrea
Jan-Jun 98	JOINT GUARD Transitioned to	Peace Enforcement/ keeping operations	26th MEU(SOC)/WASP ARG	Aviano AB, and Ramstein, Germany

<i>DATE</i>	<i>OPERATIONS</i>	<i>DESCRIPTION</i>	<i>FORCES</i>	<i>LOCATION</i>
Jun 98- Present	JOINT FORGE	Peace Enforcement/ keeping operations	Dets, VMU-2; 4th CAG and 2d LSB, 22d MEU (SOC)/ ESSEX ARG, Dets, VMU-2; 4th CAG and 2d LSB	Aviano AB, and Ramstein, Germany
Jan-Jun 98	DETERMINED GUARD	Maritime Support Interdiction in support of peace enforcement/ keeping operations	26th MEU(SOC)/ WASP ARG, 22d MEU(SOC) /ESSEX ARG	Adriatic Sea
Jun 98-Present	Transitioned to DETERMINE FORGE			
Jan-Jun 98	DELIBERATE GUARD	NFZ enforcement in support of peace enforcement/ keeping operations	VMAQ-4(-)	Republic of Bosnia and Herzegovina
Jun 98-Present	DELIBERATE FORGE (Follow on operaton)			
Jun 98	DETERMINED FALCON	Aerial show of force demonstration	26th MEU(SOC)/WASP ARG	Kosovo, Republic of Serbia
Jul 98-Present	BALKAN CALM	Kosovo diplomatic observer mission	Individual augmentees from II MEF	
Aug 98	RESOLUTE RESPONSE	Security Augmentation as a result of 7 Aug Terrorist Bomb attacks	1st Plt, 2d FAST Co; 2d Plt, 1st FAST Co Individual MSG Bn 3rd platoon (REIN), G Co BLT 2/1, 13th MEU(SOC)	Dar El Salaam, Tanzania
Aug 98-Present	RESOLUTE RESPONSE	Security Augmentation as a result of 7 Aug Terrorist Bomb attacks	2d Plt, 2d FAST Co; Individual MSG Bn Augmentees; Plt(Rein) BLT 2/1, 13th MEU(SOC)	Nairobi, Kenya
Aug 98	AUTUMN SHELTER	Preparation for possible NEO Kinsasha DROC (Not executed)	22d MEU(SOC)(-)embarked aboard USS SAIPAN and USS TORTUGA	Kinshasa, Democratic Republic of Congo
Sep-Oct 98	SOUTHERN WATCH	NFZ enforcement over Southern Iraq (38 sorties in 11 days)	15th MEU(SOC) Det, VMA-513	Kuwait
Nov 98	DESERT THUNDER	Force deployments/ preparations in support of UN resolution enforcement and potential strikes against Iraq	15th MEU(SOC)/ESSEX ARG; 31st MEU BELLEAU WOOD ARG; and Elements I MEF	Arabian Gulf, Kuwait
Nov 98-Present	HURRICANE MITCH DISASTER RELIEF	USCINCSO employs multiple JTFS to conduct disaster relief ops in support of U.S. relief efforts in the CENTAM region in order to mitigate near-term human suffering and accelerate long-term regional recovery	JTF-BRAVO: COMMARFOR and Dets, II MEF and 2d MAW	Honduras, El Salvador, Guatemala
Dec 98	OPERATION DESERT FOX	Force Deployment ISO operations to enforce UN resolutions in Iraq	31st MEU, VMFA-312	Kuwait, Arabian Gulf

Counterdrug Operations

During 1998, the Marine Corps continued to contribute to the Nation's *"counterdrug effort."* Throughout the year, Marines participated in 16 counterdrug (CD) missions in support of Joint Task Force Six (JTF-6), Joint Integrated Task Force East (JIATF-E), and Joint Integrated Task Force West (JIATF-W). These missions were conducted along the U.S. Southwest Border, on Federal lands, and within several domestic *"hot spots"* that have been designated as High Intensity Drug Trafficking Areas (HIDTAs). Of these missions, 85 percent were executed by Marines of MARFORRES. Individual Marines and units are assigned to these CD missions in order to provide support to domestic Drug Law Enforcement Agencies (DLEA) in their investigation of drug trafficking and apprehension of suspected traffickers throughout the United States.

Typical support missions include: intelligence analysis; radar operation; aviation (both air surveillance and transportation); and linguist support.

Additionally, the Marine Corps continues to support the efforts of the USCINCSOUTH to deny illegal drug traffic into the U. S. from Latin American sources. As the designated lead Service component for riverine training in the SOUTHCOM AOR, COMMARFORLANT, in his COMMARFORSOUTH (Designate) role, has conducted riverine training in Columbia, Venezuela, and Peru. Training host nation military and law enforcement agencies in the logistical and tactical aspects of riverine operations has enabled them to improve their drug interdiction efforts.

Military Support to Civil Authority

Increasingly, DoD is called upon to support civil authorities during periods of domestic emergency. The Marine Corps continues to answer the Nation's call for aid as a result of natural disasters or to augment civilian counterparts with *"unique"* capabilities the Corps possesses. In response to the devastation that resulted from Hurricane George in the Caribbean, II MEF's SPMAGTF Puerto Rico, demonstrated the Corps ability to aid our fellow Americans. Deployed aboard the USS BATAAN,



the Marines and Sailors of the MAGTF provided a sea-based response that enabled them to provide much needed support throughout the island of Puerto Rico. In all, the response included 171 roof repairs, over 100,000 gallons of potable water produced, and the utilization of 4 medium girder bridges to reestablish vital infrastructure links. Marines also found themselves responding to flooding in central Georgia and western Pennsylvania, as well as to wildland fires in Florida. This support typifies the Marine Corps capability to support civil authorities during periods of domestic emergencies.

CY98 USMC Domestic Support Matrix

DATE	LOCATION	FORCES	DESCRIPTION OF ACTION
Jan 98	Washington, D.C.	CBIRF Rapid Response Force	State of the Union Address
Mar 98	Albany, GA	MCLB Albany, Headquarters and Service Co	Immediate response to civilian authorities request for assistance
May-Jun 98	Salisbury and Laurel Falls, PA (Western PA)	Collection and Clearing Company D, 4th FSSG and I&I staff from Pittsburgh, PA	Assisted in cleanup of debris and search for victims after local communities hit by 2 tornadoes in 48 hours
Jun 98	Approx 500 NM south of St John's Newfoundland	Det, VMGR-252 and Det, VMGR-452	Aerial refueling of USCG Search and Rescue helicopter
Jun-Jul 98	State of Florida	Det, MCB Camp Lejeune Fire Fighters; Det, 8th Eng Spt Bn; Det, MCAS Cherry Point Fire Fighters	Wildland Florida Fire Fighting Support in response to FEMA/NIFC efforts to combat the Florida Wildland fires. Marine involvement included providing fire plows for the cutting of firebreaks in the vicinity of Lake City and Bunnell, and providing bridging assets in the vicinity of Daytona in order to move heavy equipment into the fire zone
Aug 98	Western NC vic of Andrews	Det, VMGR-252	Aerial search in support of the Dept of Justice (DOJ)/FBI fugitive search
Sep-Nov 98	NS Roosevelt	JTF HQ Dets, 2d MAW	Fundamental relief; Sea-based disaster relief efforts in response to Hurricane George storm damage on the island of Puerto Rico; Efforts included transportation of personnel and cargo, temporary roofing, water production, electricity generation and bridging assets



Chapter **IV**

Major Acquisition Programs

This chapter provides background information regarding key programs being pursued by the Marine Corps and the Navy to facilitate execution of the "Forward... from the Sea" naval warfare concept. These programs aggressively exploit advances in technology to improve readiness; enhance intelligence and information processing; increase the speed, mobility, supporting firepower and logistics support of sea-based expeditionary forces; and significantly minimize casualties during future operations. This chapter is divided into five sections: the first four sections correspond to programs integral to each of the major component elements of the MAGTF. The final section addresses general MAGTF support programs.

Chapter IV

Major Acquisition Programs

This chapter provides background information regarding key programs being pursued by the Marine Corps and the Navy to facilitate execution of the "Forward... from the Sea" naval warfare concept. These programs aggressively exploit advances in technology to improve readiness; enhance intelligence and information processing; increase the speed, mobility, supporting firepower and logistics support of sea-based expeditionary forces; and significantly minimize casualties during future operations. This chapter is divided into five sections: the first four sections correspond to programs integral to each of the major component elements of the MAGTF. The final section addresses general MAGTF support programs.



PART 1 - Command Element Programs

The Command Element (CE) of the MAGTF headquarters is task organized to provide the command, control, communications, computers, intelligence, and interoperability (C4I2) necessary for the effective planning and execution of Marine Corps power projection operations.

This section provides basic descriptions of Marine Corps C4I programs/systems under development or scheduled for procurement or fielding during FY99 and FY00. The system descriptions are organized according to the following primary command and coordination functional area they support:

❑ ***Maneuver.*** Maneuver systems function to pull and fuse information from other command and coordination functional areas. They provide the commander an integrated representation of the battlespace or area of operations.

❑ ***Intelligence.*** Intelligence systems support the timely planning, collection, processing, production, and dissemination of all-source intelligence. Additionally, these systems support the effective employment of reconnaissance, surveillance, and target acquisition resources.

❑ ***Air Operations.*** Air operation systems are used to plan and coordinate Navy and Marine Corps air combat operations and interface with joint and combined air operation systems. These systems also interface directly with non-aviation fire support systems.

❑ ***Fire-Support.*** Fire support systems integrate the artillery and air support within the MAGTF and naval gunfire for joint and combined fire support.

❑ ***Combat Service Support.*** Combat service support systems ensure effective logistics planning and operations to include all logistics functions that support the deployment, employment, and reconstitution of forces.

❑ ***Command and Control Warfare.*** Command and control warfare systems coordinate C2 and protection actions in support of C2 warfare operations.

MAGTF Command, Control, Communications, Computer, and Intelligence (C4I)

MAGTF C4I is the overall concept for the migration and integration of tactical data systems, communication systems, and information security systems in the Marine Corps. MAGTF C4I provides commanders with a common tactical picture and the means to manage the increasingly complex modern battlefield. MAGTF C4I provides the ability to send, receive, process, filter, store, and display data to aid in tactical decision making. MAGTF C4I employs the same types of common hardware and software whether ashore or afloat, in garrison, or in the field. The development plan for MAGTF C4I envisions the creation of an integrated migration strategy which incorporates software functionality of migrating systems into the MAGTF Software Baseline (MSBL). Successive versions of MSBL will provide increased functionality as the threat changes and doctrine and requirements evolve.



By capitalizing on the existing core services of the Unified Build/Defense Information Infrastructure and Common Operating Environment, the Marine Corps intends to reengineer numerous systems across the mission areas of land operations, intelligence/dissemination, airspace management/air operations, fire support, combat service support, and tactical warfare simulation. The ongoing MAGTF C4I migration effort is consistent with, and supportive of, the Assistant Secretary of Defense for C3I mandate to designate DoD standard migration systems. Individual systems will be merged so information can be shared via MAGTF C4I. An additional goal is to reduce the acquisition schedule and cost of initiatives associated with MAGTF C4I.

Global Command and Control System (GCCS)

DESCRIPTION

The GCCS is a flexible, evolutionary, interoperable Joint C2 system which replaced the venerable Worldwide Military Command and Control System as the Joint C2 system of record in August 1996. The current focus is to improve the functionality of the initial Joint Operational Planning and Execution System (JOPES) applications and on expanding GCCS with additional capabilities to include: a common operational picture; intelligence functionality; Joint Task Force requirements; and a Top Secret GCCS. The Navy and Marine Corps focus will be to transition their Service specific C4I systems to a Defense Information Infrastructure Common Operating Environment (DII COE) to bring GCCS functionality to the lowest common denominator -- the warfighter. Ultimately, GCCS will connect joint and upper echelon service systems down to the battalion level and move information both vertically and horizontally.

PROCUREMENT PROFILE:

FY99

FY00

Quantity:

0

0

OPERATIONAL IMPACT

GCCS encompasses the policies, procedures, personnel, automated information processing systems, common communications paths, and common switches necessary to plan, deploy, sustain, and employ forces. GCCS provides Joint operational planning and execution capabilities and facilitates the deployment and redeployment of Marine Corps forces (MARFORs). GCCS and MAGTF C4I will be compatible.

PROGRAM STATUS

GCCS is a joint program with the Defense Information Systems Agency (DISA) as the lead agency. The Marine Corps procured an initial quantity of 221 SUN/SPARC 20 application servers for fielding to 32 Initial Operational Capability (IOC) sites. Plans for FY99 include: researching Microsoft Windows NT platforms in GCCS as an evolutionary path; procurement of equipment to support additional GCCS sites; and ensuring future DISA software releases with Year 2000 (Y2K) segments and completion of additional upgrades.

DEVELOPER/MANUFACTURER

Software - DISA

Hardware - Commercial off-the-shelf

MANEUVER

Tactical Combat Operations (TCO) System

DESCRIPTION

The TCO system, as an operations component of the MSBL, automates MAGTF ability to receive, fuse, select, and display information from many sources and disseminate selected information throughout the battlefield. The TCO is being fielded in both a desktop Unix-based variant as well as a laptop Microsoft Windows NT based variant. TCO system attributes include: automated message processing; mission planning; development and dissemination of operations orders and overlays; display of current friendly/enemy situations; display of tactical control measures; and interfaces with local and wide area networks. The Joint Maritime Command Information System/Unified Build forms the core software for the TCO desktop system. The command and control personal computer application forms the core software for the laptop system. Both software baselines allow the MAGTF to share battlefield information with the Navy and Coast Guard. The TCO system will transition to the DII COE in FY99, providing seamless interoperability with the GCCS and other DII COE compliant systems.

PROCUREMENT PROFILE:

Quantity:

FY99

54

FY00

0

OPERATIONAL IMPACT

The system links the operations section of all MAGTF units of battalion/squadron size and larger. MARFORs embarked aboard Navy ships will “plug in” to the Naval Tactical Command System Afloat. When ashore, MAGTF C4I allows interoperability with joint forces over internal and external communications networks.

PROGRAM STATUS

Milestone III was approved in November 1995 and IOC was achieved in June 1996, with 334 systems fielded down to the regimental/group level. FOC should be accomplished by the end of FY99.

DEVELOPER/MANUFACTURER

Integration - Space and Naval Warfare Systems Center, Code 61,
North Charleston, SC 29419

Hardware - Hewlett Packard, IBM

Digital Technical Control (DTC)

DESCRIPTION

The DTC facilitates the installation, operation, restoration, and management of individual circuits and digital links consisting of many multiplexed circuits. It provides the primary interface between subscriber systems/networks within a local area and long-haul multi-channel transmission systems to transport voice, message, data, and imagery traffic. It can add, drop, and insert digital circuits into multiplexed groups; provide a source of stable timing to connected equipment; condition circuits; and perform analog/digital, 2-wire/4-wire, and signaling conversions. It contains the monitoring, testing, and patching equipment required by technical controllers to troubleshoot and restore faulty circuits and links.



PROCUREMENT PROFILE:

FY99

FY00

Quantity:

9

16

OPERATIONAL IMPACT

The DTC acts as a central management facility terminating most communication links and individual circuits for major commands and allows the MAGTF commander to install, operate, and maintain the supporting C4I system. The DTC, along with the Unit Level Circuit Switch, Tactical Data Network, Tactical Communications Central, and various multi-channel radios, forms the backbone of the Marine Corps digital communication network. It integrates the communications assets of a node into an efficient system providing the commander seamless communications while making efficient use of limited bandwidth and equipment.

PROGRAM STATUS

The program achieved Milestone III production during April 1998.

DEVELOPER/MANUFACTURER

EMD - Tobyhanna Army Depot, PA

Production - TBD

Tactical Data Network (TDN) System

DESCRIPTION

The TDN system consists of a network of interconnected gateways and servers. These systems and their subscribers are connected by a combination of common-user, long-haul transmission systems; local area networks; single channel radios; and the switched telephone network. The TDN system provides basic data transfer and switching services as well as access to strategic, supporting establishment, joint, and other service component tactical data networks. It supports network management capabilities and value-added services such as message and facsimile handling, directory services, file sharing, and terminal emulation support.

The TDN gateway deployed at the MEF and other major subordinate commands provides access to the nonsecure internet protocol router network, secret internet protocol router network, and other services' tactical packet switched networks. It will be configured for mobility in a heavy variant high-mobility, multi-purpose wheeled vehicle (H-HMMWV) mounted shelter with a second H-HMMWV provided in support.

The TDN server deployed to the battalions is in four man-portable transit cases. It gives MAGTF C4I users the ability to transition from AUTODIN to its mandated replacement system, the Defense Message System (DMS).

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity: (Gateways)</i>	<i>12</i>	<i>13</i>
<i>(Servers)</i>	<i>244</i>	<i>87</i>

OPERATIONAL IMPACT

The TDN augments the existing MAGTF communications infrastructure to provide an integrated data network for the MAGTF tactical data systems.

PROGRAM STATUS

The program is in the Production Phase. Milestone 0 was approved in July 1994, Milestone I/II in March 1995, and Milestone III in April 1998. Contract award is planned for mid FY99.

DEVELOPER/MANUFACTURER

Prototypes - Tobyhanna Army Depot, PA

Production - TBD

INTELLIGENCE

Intelligence Analysis System (IAS)

DESCRIPTION

The IAS deploys either as a MEF IAS, in IAS Suites, or as single IAS laptop workstations. The MEF IAS serves as the hub of the Marine Air-Ground Intelligence System (MAGIS). It provides intelligence functionality to the echelon-tailored, MAGTF all source intelligence fusion centers and is compatible with the DII COE. MEF IAS is a sheltered, mobile H-HMMWV mounted system with multiple analyst workstations in a client-server LAN configuration. IAS Suites for intermediate commands are configured in either two or four workstation variants. The Single IAS workstations are laptop Microsoft Windows NT based systems for battalion and squadron units. These are now referred to as intelligence operations workstations (IOWs). The IOW meets the material fielding requirements for both the IAS and TCO system single workstations.



PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity: MEF IAS</i>	<i>5</i>	<i>0</i>
<i>IAS Suites</i>	<i>0</i>	<i>0</i>
<i>IAS W/S</i>	<i>320*</i>	<i>0</i>

**Figure does not include IOWs being fielded with the TCO project*

OPERATIONAL IMPACT

The MEF IAS and IAS Suites host the GCCS Maritime Software Baseline with the GCCS Integrated Intelligence and Interoperability (GCCS-I3) functionality packages. All IAS carry provisions for communication links with other intelligence agencies and systems at the national, theater, and tactical levels.

PROGRAM STATUS

The IAS Suite reached FOC (70 systems) in 3rd Quarter FY98. MEF IAS reached IOC in 1st Quarter FY99 and FOC is scheduled for 1st Quarter FY00. The IAS/IOW workstations begin fielding in 1st Quarter FY99.

DEVELOPER/MANUFACTURER

MEF IAS - TRACOR Corp, Oxnard, CA
IAS Suite - Naval Surface Warfare Center, Crane, IN
IAS Workstation - SPAWAR, Charleston, SC

Manpack Secondary Imagery Dissemination System (MANPACK SIDS)

DESCRIPTION

Using available communications paths, the MANPACK SIDS provides the capability to electronically collect, store, manipulate, cut, crop, transmit, and receive reconnaissance imagery products throughout the MAGTF, as well as to adjacent, higher, and external commands. MANPACK SIDS fully complies with the National Imagery Transmission Format Version 2.0 and the Tactical Communications Protocol. MANPACK SIDS is also Y2K compliant.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	<i>7</i>	<i>0</i>

OPERATIONAL IMPACT

Although MANPACK SIDS is hosted on the IAS SIDS it is a stand-alone system and is not dependent on the IAS SIDS. Each MANPACK SIDS is configured with three outstations and one basestation. These systems will be distributed to the MAGTF through the MEF level.

PROGRAM STATUS

The MANPACK SIDS program has purchased sixty-three systems and will bring to production ready condition three of the ten LRIP systems. This allows for a total of sixty-six systems available for fielding in FY99. The remaining seven Low Rate Initial Production (LRIP) systems require funding to be brought to production ready configuration. IOC is scheduled for FY99. FOC will be scheduled upon receipt of funding.

DEVELOPER/MANUFACTURER

MANPACK SIDS hosted software; Harris HUITs software; and MANPACK SIDS hosted hardware - Kodak/Canon, Litton, Alden, Panasonic

Marine Corps Common Hardware System Integrator/Developer - Naval Surface Warfare Center, Crane, IN



Radio Reconnaissance Equipment Program-SIGINT Suite-1 [RREP-SS-1]

DESCRIPTION

The RREP-SS-1 provides Radio Reconnaissance Teams (RRTs) of the FMF Radio Battalions with the only enhanced, man-portable Signal Intelligence (SIGINT) system. The system consists of low-cost, non-developmental item/commercial-off-the-shelf (NDI/COTS) hardware and software tailored to conduct signals search and exploration missions in support of the MAGTF commander. RREP-SS-1 enables RRTs to successfully prosecute low level, single channel, unencrypted tactical HF/VHF/UHF signals. The system incorporates modularly-configured, ruggedized components that provide the RRT with the capability to conduct automated signals search/cataloging and radio direction finding, database storage and manipulation, limited analysis, Global Positioning System (GPS) interface, digital audio recording, digital database transfer, and reporting functions.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	<i>0</i>	<i>0</i>

OPERATIONAL IMPACT

The RREP-SS-1 is the second suite of equipment developed under the RREP initiated in 1991. During FY98 it replaced the currently fielded system, the Radio Reconnaissance Distribution Device (R2D2). With increased capabilities over R2D2, RREP-SS-1 features a reduction in size, weight, cabling, and power requirements. Its modular design enables future technology upgrades without changing the basic operator mission profile and ensuring technical parity with advanced and emerging enemy communications. Each generation of RREP equipment is fielded with a full spare parts block, documentation, training, and warranty/program support for an operational service life of three years.

PROGRAM STATUS

In production, RREP-SS-1 received a Milestone III decision in 1996 to procure and field 18 systems. IOC and FOC were reached during FY98. RREP-SS-2 received a Milestone 0/I and Milestone II in FY98, and has a scheduled IOC/FOC for FY01.

DEVELOPER/MANUFACTURER

California Microwave - Woodland Hills, CA

VISICOM Laboratories - Pensacola, FL

Radio Reconnaissance Technologies - Stafford, VA

Team Portable Collection System [TPCS] Upgrade

DESCRIPTION

The TPCS Upgrade is comprised of critical low-density components, equipment, and software that enhance current TPCS operations. The TPCS Upgrade architecture is flexible and scalable to rapidly tailor collection capabilities. The complete system upgrade consists of the Communications Intelligence (COMINT) Collection Subsystem (CCS) which is comprised of four intercept/direction finding outstations (CCS-OS); an Analysis Subsystem (AS); and a Communication Subsystem (CS). The CCS-OSs are controlled by and reported to the AS via tactical radio frequency (RF) data links. External communications to the supported MAGTF is via the CS using tactical RF data link. All subsystems may be operated using vehicular generator, commercial, or battery power sources. The TPCS Upgrade equipment is configured into man-portable loads that can be transported by team personnel for short distances.

PROCUREMENT PROFILE:

FY99

FY00

Quantity:

0

6

OPERATIONAL IMPACT

TPCS Upgrade provides the MAGTF with organic capability to exploit advance signal types. The TPCS Upgrade will also increase the current fielded TPCS operational suitability and effectiveness by increasing user friendliness, power, and reliability, and reducing processing time, size and weight. The Upgrade will introduce the low probability of intercept exploitation capability, as well as cellular and other advance signals exploitation capability. The system's evolutionary acquisition strategy will continue to increase the capability of radio battalions to exploit present and future technologies in the rapidly changing information technology environment.

PROGRAM STATUS

Part of the Upgrade entered EMD during FY95 under a Non-Acquisition Category Program Definition Document. TPCS Upgrade was granted a Milestone II in FY97. IOT&E followed by a Milestone III is scheduled during FY99.

DEVELOPER/MANUFACTURER

Hardware - ARGO Systems, Sunnyvale, CA and Watkins-Johnson, Gaithersburg, MD

Software - DAC, Woodbridge, VA, and KATHPAL Tech. Inc., Elkridge, MD

Mobile Electronic Warfare Support System (MEWSS) Product Improvement Program (PIP)

DESCRIPTION

The MEWSS PIP is an advanced Signals Intelligence (SIGINT)/Electronic Warfare (EW) suite integrated into a Marine Corps light armored vehicle auto-hull. It will provide the ground commander with a mobile SIGINT/EW system capable of operating in a variety of tactical situations. The MEWSS PIP will intercept, conduct direction finding (DF), and exploit modern enemy communications and battlefield radars. The primary mission subsystems provide intercept, collection, and geolocation across a broad frequency range and a capability against a variety of modern threat communications and non-communications emitters. The MEWSS PIP will provide valuable SIGINT for mission planning, DF information to artillery and air support units, and indications and warnings to operational maneuver units.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	<i>1</i>	<i>0</i>

OPERATIONAL IMPACT

The MEWSS PIP is a state-of-the-art force multiplier to maneuver elements, providing unprecedented EW capability in a tactical platform. It provides complete battlefield situational awareness of friendly and threat emitters to support a wide variety of peacetime and wartime scenarios. The system the MEWSS PIP replaces contains 1970's technology with no capability against modern threat emitters, no automated DF, and no ELINT capability. The MEWSS PIP will provide intercept, DF, jamming, and precision location against a wide array of modern modulation techniques, an expanded frequency range, and non-communications signals. The MEWSS PIP, composed of non-developmental items, shares commonality of components with a wide variety of other services' SIGINT and EW platforms, to include ARL, Guardrail, Privateer, GBCS-ONS, and the Canadian TRILS and AERIES systems.

PROGRAM STATUS

The MEWSS PIP successfully completed an OA in September 1996. A LRIP decision was made in December 1996 and IOT&E was conducted in 4th Quarter FY98, with FOT&E scheduled for FY00.

DEVELOPER/MANUFACTURER

Prime - Lockheed Martin Federal Systems, Oswego, NY

Subs - Condor Systems, Santa Clara, CA, and Lockheed Sanders, Nashua, NH

Topographic Production Capability (TPC)

DESCRIPTION

The TPC is an advanced Geographic Information System that provides commercial computer hardware and software to the Topographic Platoons to provide common battlespace visualization by producing digital and hard copy geographic intelligence for the MAGTF commander. The TPC generates digital and hardcopy geographic products from a variety of sources, to include: NIMA foundation data, commercial and national imagery, scanned foreign maps, and ground gathered geographic intelligence. The TPC will produce digital products to be disseminated electronically through the C4I infrastructure, as well as distribution of a low volume of replicated traditional hard copy products.

PROCUREMENT PROFILE:	FY99	FY00
Quantity:	0	0

OPERATIONAL IMPACT

The TPC will enable the Topographic Platoons to support MARFORs with the most current common battlespace visualization. Without the TPC, MARFORs would not have access to time-sensitive information or support from national and theater resources. The current topographic set cannot replicate or electronically disseminate the types or quantities of geographic intelligence products required by MAGTF commanders.

PROGRAM STATUS

The TPC program has received Milestone 0, giving the program office authorization to explore the concepts and alternatives to meet the requirements.

DEVELOPER/MANUFACTURER

TBD

Joint Service Imagery Processing System Tactical Exploitation Group (JSIPS TEG)

DESCRIPTION

The JSIPS TEG is an imagery ground station, configured in three HMMWVs, that supports MAGTF tactical imagery exploitation operations. The JSIPS TEG provides the capability to receive, process, store, exploit, and disseminate imagery derived from the F/A-18D Advanced Tactical Airborne Reconnaissance System (ATARS). ATARS has electro-optical, infrared, and synthetic aperture radar sensors that are currently recorded to tape and will be capable of limited direct downlink to JSIPS TEG in 2001. JSIPS TEG will be capable of utilizing imagery from additional tactical and theater platforms (e.g., UAVs, U-2) when upgraded with the common imagery processor (CIP) in 1999. The JSIPS TEG can deploy with any MAGTF to provide imagery intelligence for all aspects of operational planning.

PROCUREMENT PROFILE:

FY99

FY00

Quantity:

3

0

OPERATIONAL IMPACT

A JSIPS TEG will be fielded to each MEF and operated and maintained by the Force Imagery Interpretation Unit (FIIU). When fully interoperable with the JSIPS National System, TEG will provide the MAGTF or a Joint Task Force (JTF) with the capability to receive, exploit, store, and disseminate imagery and imagery products from national imagery sources as well. The JSIPS TEG will then provide the MAGTF with the capability to produce and disseminate imagery reports and products from all available imagery sources.

PROGRAM STATUS

The 2d FIIU at Marine Corps Air Station, Cherry Point, NC, completed an extensive user evaluation on a prototype TEG, the results of which were used to finalize system specifications for production TEGs. IOC for the JSIPS TEG (ATARS tape only) is planned for 2nd through 4th Quarter FY99. FOC (to include CIP and Datalink) is anticipated in FY01.

DEVELOPER/MANUFACTURER

Prime - Raytheon (E-Systems)

Principal Subs - GDE Systems, Inc. and TRACOR (Vitro, Inc.)

AIR OPERATIONS

Common Aviation Command and Control System (CAC2S)

DESCRIPTION

The CAC2S is a coordinated modernization effort to replace the existing command and control (C2) equipment of the Marine Air Command and Control System (MACCS) and to provide the Aviation Combat Element (ACE) commander with the necessary hardware, software, equipment, and facilities to effectively command, control, and coordinate air operations. The CAC2S system will accomplish the MACCS missions with a suite of operationally scalable modules capable of supporting any operational contingency. The CAC2S integrates the functions of aviation C2 into an interoperable naval system that will support the core competencies of all Marine Corps warfighting concepts, to include OMFTS.

PROCUREMENT PROFILE:

FY99

FY00

Quantity:

0

0

OPERATIONAL IMPACT

The CAC2S, in conjunction with MACCS organic sensors and weapons systems, supports the tenants of OMFTS and fosters joint interoperability with other service C2 systems. It will replace legacy C2 systems in the following Marine aviation C2 elements:

Tactical Air Command Center (TACC)

Tactical Air Operations Center (TAOC)

Direct Air Support Center (DASC)

Marine Air Traffic Control Detachment (MATCD)

Low Altitude Air Defense Battalion (LAAD Bn)

PROGRAM STATUS

CAC2S is currently in Acquisition Phase 0, Concept Exploration. A Proof of Concept Demonstration is planned for FY99 with IOC and FOC anticipated in FY04 and FY07, respectively.

DEVELOPER/MANUFACTURER

Engineer/Integrator - SPAWAR System Center, Charleston, SC

Air Defense Communications Platform (ADCP)

DESCRIPTION

The ADCP is a shelterized HMMWV based system that contains all the necessary communications and computer equipment to conduct air defense C3 operations on an interim basis until replaced by the CAC2S. A required component of the Marine Corps interim Theater Ballistic Missile Defense (TBMD) system, the ADCP receives, processes, transmits, and forwards critical voice and target data information to required MACCS agencies and joint users of the Joint Tactical Information Distribution System (JTIDS) network.



PROCUREMENT PROFILE:

FY99

FY00

Quantity:

8

0

OPERATIONAL IMPACT

The fielding of the ADCP enhances the ability of the MAGTF commander to deploy air defense assets effectively. Until CAC2S is fielded, the single configuration HMMWV based system will meet all interim requirements for receiving and passing cueing to internal and external units engaged in TBMD, tactical ballistic, and cruise missile defense systems.

PROGRAM STATUS

A favorable Milestone I/II decision was rendered during FY95. A favorable Milestone III decision was approved in FY98. IOC is scheduled for 2nd Quarter FY99 and FOC is scheduled for 4th Quarter FY99.

DEVELOPER/MANUFACTURER

Software - Naval Surface Warfare Center, Crane, IN

Hardware and Integration - Naval Surface Warfare Center, Crane, IN

Improved Direct Air Support Central (IDASC) Product Improvement Program (PIP)

DESCRIPTION

The High Mobility Downsized (HMD) Direct Air Support Central (DASC) is an IDASC PIP consisting of three components: downsizing/repackaging of the AN/TSQ-155 (IDASC) and OE-334/TRC (Antenna Coupler Group); automation of selected DASC functions; and communications upgrades. Elements of the program will be fielded to both the Marine Air Support Squadrons (MASS) and the Marine Tactical Air Command Squadrons.

The AN/TSQ-207 (Communications, Air Support Central) replaces the AN/TSQ-155 Improved DASC and the OE-334/TRC Antenna Coupler Group for Marine Air Support Squadrons. The AN/TSQ-207 consists of five lightweight multipurpose shelters (LMS) mounted on M-1097 heavy variant HMMWVs and towing M-116A3 trailers. Each LMS is equipped with a dynamic communications distribution system (CDS) that provides operators access to various radios, telephones, and intercoms required to perform the direct air support mission. The DASC will receive twelve ruggedized Telos SS-5 laptop computers and three Telos SS-20 servers per each AN/TSQ-207. The system will include mobile electric power and environmental control units for each vehicle/trailer set.

The AN/MRQ replaces the OE-334/TRC Antenna Coupler Group, AN/TYA-16C Communications Group, and selected portions of the AN/TYQ-51 Advanced Tactical Air Command Central for Marine Tactical Air Command Squadron (MTACS). The AN/MRQ is a single LMS mounted on an M-1097 heavy variant HMMWV with a M-116A3 trailer. The system will include mobile electric power and environmental control units for each vehicle/trailer set.

PROCUREMENT PROFILE:	FY99	FY00
Quantity: AN/TSQ-207 per MASS	2	0
AN/MRQ per MTACS	3	0

OPERATIONAL IMPACT

The acquisition objective is a total of 54 vehicles (2 for Marine Corps Communications Electronics School (MCCES), 10 for each of four MASSs, and 3 for each of four MTACSs) plus 2 additional de-hutted systems to fulfill training requirements (56 total systems). Each system supports 20 operators in the MASS and 26 operators in the MTACS.

PROGRAM STATUS

IOC and FOC are scheduled for 2nd and 4th Quarters FY99. The program also provides for automation and satellite communications upgrades during FY99.

DEVELOPER/MANUFACTURER

System Integrator - Naval Surface Warfare Center, Crane, IN

Tactical Air Operations Center (TAOC)

DESCRIPTION

The TAOC is comprised of several weapon systems that are in various stages of their life cycle. The individual systems include the AN/TYQ-23 (V) 1 Tactical Air Operations Module (TAOM); AN/TPS-59 (V) 1 and AN/TPS-63 air surveillance radars, an interim Joint Tactical Information Data System (JTIDS) capable JTAOM utilizing a modified AN/TSC-131; and the Sector Antiair Warfare Facility (SAAWF). The AN/TYQ-23 (V) 1 will be upgraded to the AN/TYQ-23 (V) 4 and the interim JTIDS will be replaced with the AN/TYQ-82 Tactical Data Communications Processor (TDCP). The TAOC provides the equipment and organization necessary to plan, direct, and control tactical air operations, and to perform specified air space management tasks.

PROCUREMENT PROFILE:	FY99	FY00
Quantity: TAOM (V) 4	31	0
AN/TYQ-82	14	0
TPS-59 (V) 3	11	0

OPERATIONAL IMPACT

The TAOM(V)4, or Operator Console Upgrade (OCU), is a reliability centered engineering change that replaces the existing operator console and provides a commercial interface to external networks. The OCU introduces GCCS functionality and windows-based man-to-machine interface. JTIDS was initially integrated through an interim JTIDS Module (JTAOM) configuration. It will be upgraded to a common TACC/TAOC solution by incorporating the AN/TYQ-82, HMMWV mounted JTIDS shelter. In a related effort, the AN/TPS-59 is upgraded to the (V)3 configuration which incorporates a Theater Ballistic Missile (TBM) detection and tracking capability. TBM early warning and track data is disseminated to the theater via the Air Defense Communications Platform. The Navy's Cooperative Engagement Capability (CEC) is also planned to interface with both the AN/TPS-59 (as a contributor) and the TAOC (as a user) and support the establishment of a Single Integrated Air Picture. Finally; in response to a growing low altitude, cruise missile threat; the AN/TPS-63 radar will be replaced by the AN/MPQ-62, Continuous Wave Acquisition Radar (CWAR).

PROGRAM STATUS

During FY97 the OCU Upgrade EMD prototypes were delivered and tested by a FMF Field User Evaluation. A Milestone III and a production contract were awarded in FY98. Initial fielding will begin the 1st Quarter FY00 and finish by the end of FY00. Also during FY97, the TDCP EMD prototypes were delivered. The TDCP underwent a successful IOT&E in

FY98. The TDCP is preparing for a FY99 Milestone III decision. The SAAWF was fielded in FY96 and upgraded in FY98 to extend TAOM voice communications to operator positions. A future Combat Integration Capability/SAAWF configuration is being developed under a joint Air Force/Marine Corps initiative.



DEVELOPER/MANUFACTURER

AN/TYQ-23(V)4 OCU Upgrade – Litton Data Systems

AN/TYQ-82 TDCP – Litton Data Systems

AN/TYQ-87 SAAWF w/Voice – MCTSSA /Litton Data Systems

MTS Radar Interface – Litton Data Systems

AN/TPS-59 (V)3 Upgrade – Lockheed Martin

Cooperative Engagement Capability (CEC)

DESCRIPTION

The Cooperative Engagement Capability (CEC) brings revolutionary new capability to aviation C2 by distributing sensor and weapons data from existing systems in a significantly different manner. This new capability brings benefits to all air defense areas including quantum improvements in track accuracy, continuity, and combat identification consistency; provision of an identical picture to all CEC participants; increased battle space awareness; reduced reaction time; and extended engagement ranges through cooperative engagements.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	<i>0</i>	<i>0</i>

OPERATIONAL IMPACT

Integrating the current CEC units afloat with future CEC land units ashore will project sea-borne power over the beach and inland by increasing the reach of shipboard sensors and weapon systems over land, providing earlier warning of attack, as well as providing forces ashore with a single integrated air picture. CEC fire control quality composite tracks, formed from all the radar measurement data available, can be used by both shipboard and land based point and area defense weapon systems in a coordinated response to a wide variety of threats. For example, a Marine Corps AN/TPS-59 long-range surveillance radar ashore can provide air target data for a Carrier Battle Group or Amphibious Ready Group to conduct engagements without ever transmitting their own sensors.

PROGRAM STATUS

CEC is an Other Service program with the Navy as lead Service. The program is managed by the Program Executive Officer (PEO) for Theater Surface Combatants and is currently in production with fielding aboard Aegis cruisers and amphibious transports. Future plans include development and installation aboard the Navy's fleet of E-2C Hawkeye Airborne Warning and Control System aircraft. The Marine Corps AN/TPS-59(V)3 long range surveillance radar has undergone extensive development and integration to become a CEC participant in littoral operations. Certification testing is scheduled for 4th Quarter FY99. CEC is planned for integration into the Common Aviation Command and Control System. This project is currently in Phase 0 with an anticipated IOC and FOC of FY04 and FY07, respectively.

DEVELOPER/MANUFACTURER

Raytheon E-Systems
Solipsys Corporation
Johns Hopkins University Applied Physics Labs

Theater Battle Management Core Systems (TBMCS)

DESCRIPTION

TBMCS is a USAF Command and Control System, mandated by the Chairman of the Joint Chief of Staff for generation, dissemination, and execution of the Air Tasking Order (ATO). It is an upgrade to the existing Contingency Theater Automated Planning System (CTAPS) which is fielded in all Services. The host system resides within the Tactical Air Command Center (TACC), with remote systems located throughout the MAGTF to receive the ATO and provide pertinent information to the host system for execution management and generation of future ATOs.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	<i>1</i>	<i>5</i>

OPERATIONAL IMPACT

The fielding of TBMCS migrates the CTAPS system from a stovepipe system to a Defense Information Infrastructure Common Operating Environment compliant open system, interoperable on multiple UNIX platforms. The system is scalable and provides capability from small, quick responses up to a Joint Force Air Command Center size operation. The system supports operations in a range of operational environments, from Marine Corps only to joint and coalition environments.

PROGRAM STATUS

TBMCS (V)1.0 is currently scheduled to be released in FY99 with complete migration of all CTAPS systems to TBMCS (V)1.0 scheduled for completion by 4th Quarter FY99.

DEVELOPER/MANUFACTURER

Lockheed Martin Mission Systems, Colorado Springs, CO

Expeditionary Air Traffic Control (ATC)

DESCRIPTION

Expeditionary ATC equipment provides air traffic controllers with the information necessary to safely and expeditiously control friendly aircraft and provide information to aircraft navigating in friendly airspace. ATC-CAC2S will replace the currently fielded Marine Air Traffic Control and Landing System (MATCALS) with a system of HMMWV mounted radars. The AN/TSQ-216 Remote Landing Site Tower (RLST) will replace the currently fielded TRC-195 tower cab with a HMMWV mounted control tower.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity: ATC-CAC2S</i>	<i>0</i>	<i>0</i>
<i>RLST</i>	<i>7</i>	<i>5</i>

OPERATIONAL IMPACT

ATC-CAC2S will provide a HMMWV mounted state-of-the-art ATC surveillance and precision approach radar system that significantly reduces tactical and strategic lift requirements. The system will be fully interoperable with other CAC2S applications, utilize common hardware and software, and function as an ACE C2 node. The AN/TSQ-216 RLST will provide a fully functional two-position control tower complemented by a robust communications capability. These two programs provide an expeditionary ATC capability that fully supports OMFTS.

PROGRAM STATUS

The acquisition strategy to migrate from MATCALS to ATC-CAC2S has been approved. An analysis of alternatives is currently being conducted. IOC is scheduled for FY02 and FOC is scheduled for FY05. A Milestone III decision for the AN/TSQ-216 RLST is scheduled for FY99. IOC is scheduled for FY99 and FOC is scheduled for FY00.

DEVELOPER/MANUFACTURER

ATC-CAC2S - TBD

AN TSQ-216 RLST - Sierra Nevada

FIRE SUPPORT

Advanced Field Artillery Tactical Data System (AFATDS)

DESCRIPTION

The AFATDS is a joint Army/Marine Corps program to replace the Initial Fire Support Automated System (IFSAS). It employs a building block approach to automate into fire support functionality. As a multi-service, integrated, battlefield management and decision support system, it assists the commander in the planning, delivery, and coordination of supporting arms. AFATDS satisfies the fire support C2 requirements of the Marine Corps. All echelons of the MAGTF will receive the AFATDS and it will be employed from the AAVC-7 Assault Amphibious Vehicle, LAV-C2 Light Armored Vehicle, and AAV Advanced Assault Amphibious Vehicle.

PROCUREMENT PROFILE:

Quantity:

FY99

51

FY00

230

OPERATIONAL IMPACT

AFATDS will provide the MAGTF commander with the capability to rapidly integrate ground, air, and naval surface fire support into the scheme of maneuver. The AFATDS software architecture is interoperable with Marine Corps communications, MAGTF C4I baseline systems, and the GCCS common operating environment.

PROGRAM STATUS

The Army, the lead Service on this ACAT I program, made a favorable Milestone III decision in 1995. Army fielding efforts began in FY97 and will continue through FY07. The Marine Corps chose to wait on a subsequent version of AFATDS software (A98) that would include more air and naval surface fire support functionality. The Marine Corps established an AFATDS testbed in 1996 and will participate in a multi-service Limited User Test (LUT) during the 1st Quarter FY99 to evaluate the A98 release of AFATDS software. The Marine Corps intends to make a production/procurement decision on the A98 AFATDS software and the Army's CHS-2 hardware suite in May 1999. IOC is scheduled for FY99 and FOC for FY02.

DEVELOPER/MANUFACTURER

Software - Raytheon Systems Company

Hardware - GTE and SUN

The Marine Corps and Army are pursuing a smaller hardware platform (Compact Computer Unit-AXI) to meet their mobility and flexibility needs.

Target Location, Designation, and Hand-off System (TLDHS)

DESCRIPTION

The TLDHS is a modular, man-portable equipment suite. TLDHS will provide forward observers, forward air controllers, naval gunfire spot teams, and reconnaissance teams with the ability to: quickly and accurately locate enemy ground targets; designate targets for laser-seeking precision guided munitions and laser spot trackers and transmit (hand-off) targets digitally to fire support elements and weapon delivery platforms. The TLDHS will consist of two major subsystems: a Lightweight Laser Designator Rangefinder (LLDR) and a Target Hand-Off Subsystem (THS). The LLDR includes a target location module which integrates dual field-of-view day and thermal imagers, an eyesafe laser rangefinder, an azimuth/vertical angle measuring device, and a P/Y Code GPS receiver; a laser designator module; and a lightweight tripod/tracking head. The THS consists of a rugged handheld computer and TLDHS/THS software.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	<i>0</i>	<i>0</i>

OPERATIONAL IMPACT

The TLDHS will significantly enhance combat effectiveness by improving the timeliness, accuracy, and lethality of fire support. TLDHS will also reduce risk of fratricide, increase observer and weapon platform survivability, minimize munitions requirements, and reduce observer combat loads. TLDHS will replace the aging inventory of AN/PAQ-3 Modular Universal Laser Equipment (MULE) laser designators.

PROGRAM STATUS

The TLDHS Program is currently in EMD. The LLDR will undergo concurrent Army and Marine Corps IOT during the 1st Quarter FY00. The "all up" TLDHS will undergo FOT&E as required upon completion of incremental software releases. Production of LLDR systems for the Army will begin in FY00. LLDR production for the Marine Corps will begin in FY01 and will continue through FY04. TLDHS IOC is scheduled for FY02 and FOC is planned for FY05.

DEVELOPER/MANUFACTURER

LLDR - Litton Laser Systems Division, Apopka, FL

THS Software - USMC and support contractors

COMMUNICATIONS AND COMMUNICATIONS SUPPORT

Data Automated Communications Terminal (DACT)

DESCRIPTION

The DACT is a tactical input/output battlefield situational awareness system and communications terminal that provides seamless digitization capability to echelons below the battalion level within the Marine Corps. It is used for both foot-mobile and vehicular-mounted applications. It is used to receive, store, retrieve, create, modify, transmit, and display map overlays, operational messages/reports, and position information via MAGTF C4I tactical radios and data systems networks, and wire lines. The DACT uses the ruggedized handheld computer (RHC) as the hardware component of the system. The RHC is part of the Marine Common Hardware Suites of computer equipment.

PROCUREMENT PROFILE:

FY99

FY00

Quantity:

1,001

1,415

OPERATIONAL IMPACT

The DACT will link battalion and larger sized units employing MAGTF C4I digital systems to smaller maneuver elements. Specific system features provide enhanced capabilities far beyond any system previously fielded to small units. The internal Global Positioning System provides position location information directly plotted on a digital map display. The touch screen with passive pen entry device will allow the user to free form draw overlays directly onto the screen and automatically transmit this information to other stations on the radio net. The internal dual channel modem allows one DACT to be connected to two radio nets so that mid-level units, such as a company, can receive information from subordinates and transmit that information to higher headquarters using the same DACT device. Pre-formatted messages allow users to quickly compose and transmit information to other units.

PROGRAM STATUS

The program is in the EMD Phase. The system is undergoing developmental testing and preparing for IOT during 2nd Quarter FY99. Milestone III is planned for 3rd Quarter FY99.

DEVELOPER/MANUFACTURER

Ruggedized Handheld Computer

Prime contractor - Engineering Professional Services, Tinton Falls, NJ

Sub-contractor - Tadiran Com., LTD, Holon Israel

Software - MCTSSA; Inter-National Research Institute, Inc., Reston, VA

Super High Frequency (SHF) Tri-Band Advanced Range Extension-Terminal (STAR-T)

DESCRIPTION

The STAR-T satisfies the Marine Corps requirement for SHF, tactical tri-band SATCOM terminals. It is a H-HMMWV mounted, multichannel, tri-band SATCOM terminal. The STAR-T will replace the currently fielded Ground Mobile Forces (GMF) SATCOM terminals. It brings to the battlefield an increased channel bandwidth capability and greater operational flexibility. The STAR-T supports the equivalent of four 1.544 Mbps circuits. It can communicate over the Defense Satellite Communications System (DSCS) and commercial satellite systems. It will provide communications planners more options to support the MAGTF commander.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	<i>5</i>	<i>33</i>

OPERATIONAL IMPACT

Currently the deployed GMF multichannel SATCOM terminals do not have the bandwidth to meet the MAGTF commander's requirement for increasing quantities of information. Fielding of the STAR-T will help alleviate the burden on today's communications systems.

PROGRAM STATUS

The STAR-T is an Army lead program. It completed Phase 0, Concept Exploration, and entered LRIP with a Milestone I/IIIA decision in 1996. Milestone IIIB is expected in FY99.

DEVELOPER/MANUFACTURER

Raytheon Electronics Systems, Marlborough, MA

**Secure Mobile Anti-Jam Reliable
Tactical Terminal (SMART-T)**

DESCRIPTION

The SMART-T is a transportable, HMMWV mounted tactical SATCOM terminal that operates with Military Strategic and Tactical Relay (MILSTAR) compatible communications payloads. The SMART-T transmits an extremely high frequency (EHF) uplink signal and receives a super high frequency (SHF) downlink signal to provide robust, low-probability-of-intercept, jam resistant communications. SMART-T will provide medium data rate and low data rate communications simultaneously.

PROCUREMENT PROFILE:	FY99	FY00
Quantity:	24	1

OPERATIONAL IMPACT

The SMART-T aligns the Marine Corps with the Joint Military SATCOM architecture in the EHF spectrum and provides MAGTF elements with multi-channel internal and external, long-haul, critical C2 communications. The SMART-T meets the joint requirement for a data/voice system that provides secure, mobile, worldwide, anti-jam, reliable, low probability of intercept, and tactical SATCOM that are not subject to terrain masking or distance limitations.

PROGRAM STATUS

The SMART-T contract was awarded in 1996. LRIP for the Army commenced in FY96. Full scale production will commence in FY99. IOC for the Marine Corps is FY01 and FOC is scheduled for FY02.

DEVELOPER/MANUFACTURER

Raytheon Electronic Systems, Marlborough, MA

Enhanced Position Location Reporting System (EPLRS)

DESCRIPTION

EPLRS provides MARFORs with a critical command, control, and situational awareness tactical data distribution network that does not currently exist. EPLRS links the MAGTF C4I tactical data system architecture with a user-transparent, automatic relaying, and automatic rerouting communications network. The end product is communications connectivity to support a flexible, seamless, and integrated MAGTF C4I tactical data architecture. Packet radio technology employed within a time division multiple access (TDMA) scheme provides secure, jam-resistant, and self-healing data distribution. EPLRS provides for data transfer during unit maneuver and mobile command post operations. EPLRS will be the primary entry node for sensor collected information from forward deployed units for transmission to higher headquarters. This type connectivity is not currently available. The Army is fielding the EPLRS as their tactical data distribution network and the Navy is employing EPLRS as part of its KSQ-1 program. Thus, data connectivity between joint forces will be made easier. This functionality supports MARFORs during amphibious operations.

The primary EPLRS components are a Downsized Enhanced Net Control Station (NCS-E(D)) and Enhanced PLRS Radio Sets (RS). The NCS-E (D) provides control, timing, monitor, and cryptographic variable generation and update for the EPLRS network.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity: RS</i>	<i>0</i>	<i>0</i>
<i>NCS</i>	<i>8</i>	<i>0</i>

OPERATIONAL IMPACT

EPLRS provides mission critical data, common tactical picture, and sensor to shooter information; distribution during unit maneuver and mobile command post operations. EPLRS will be fielded to infantry, artillery, LAV, tank, and mobile command units.

PROGRAM STATUS

The Army, as the lead Service, issued a successful Milestone III and fielding decision in February 1997. The Marine Corps conducted a successful TE involving TDN servers and various host equipment (TCO, IAS, Banyan Client PCs) in April 1998. A Marine Corps fielding decision is scheduled for FY99 with IOC to occur in FY00.

DEVELOPER/MANUFACTURER

Raytheon

Base Telecommunications Infrastructure (BTI) Program

DESCRIPTION

The BTI program provides a backbone information transmission system at every Marine Corps base and station. This will support the capability to transfer data, imagery, voice and video information electronically to, from, and between all locations aboard the base or station and will provide access to and from worldwide systems, including those supporting deployed forces. The equipment purchased by this program includes copper cable, fiber optic cable equipment using Synchronization Optical Network (SONET) technology, Asynchronous Transfer Mode (ATM) transmission technology, and Integrated Services Digital Network (ISDN) capable telephone systems.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	<i>Various</i>	<i>Various</i>

OPERATIONAL IMPACT

The BTI program provides the bases and stations the infrastructure need to support the new DoD and Marine Corps video/data/intelligence programs.

PROGRAM STATUS

Delivery orders will be awarded during 2nd Quarter FY99 by Marine Corps Base Quantico, VA, Marine Corps Air-Ground Combat Center 29 Palms, CA, and Marine Corps Logistics Bases Barstow, CA, and Albany, GA.

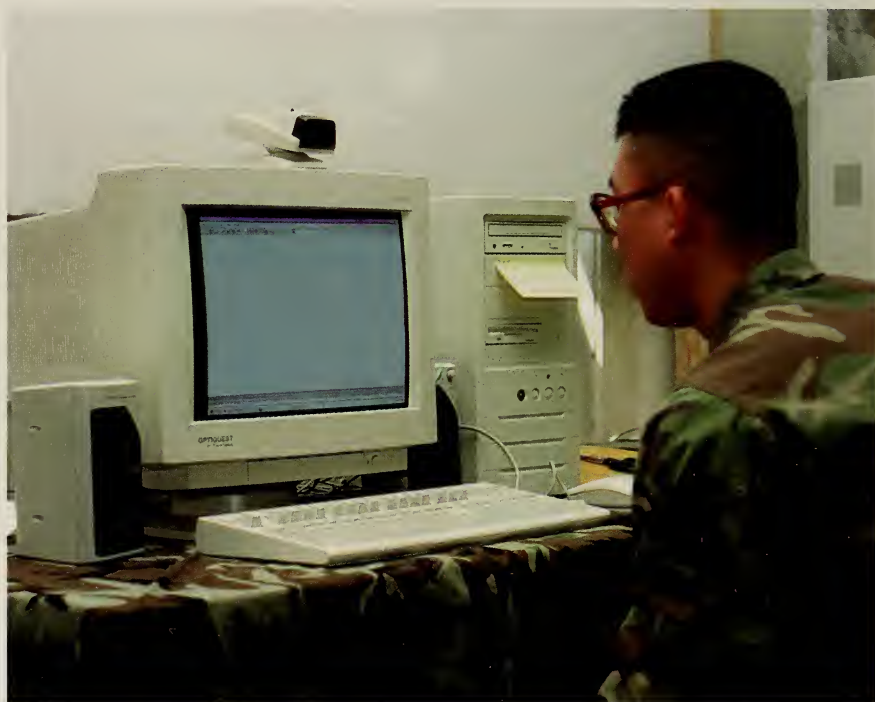
DEVELOPER/MANUFACTURER

GTE - Needham, MA

Marine Corps Enterprise Network (MCEN)

DESCRIPTION

Emerging Marine Corps Information Technology (IT) systems are being designed, developed and fielded in a support structure that emphasizes distributed computing capabilities in a client-server architecture. In addition, there is an ongoing requirement to maintain the MCEN infrastructure to support DoD sponsored and Marine Corps unique client-server applications. MCEN infrastructure consists of servers, hubs, switches, peripherals, workstations, workstation and network



operating system (NOS) software, common end-user applications (principally e-mail and office automation products), and network management tools. The Network Infrastructure project consists of the following sub-components which are designed to enhance the C3I capabilities of both FMF and Supporting Establishment users in FY99 and beyond: Deployment of NT NOS/Messaging System; Base Network Upgrades; Network Management and Planning Tools/Services; and Enterprise Network Data Storage Solution (NDSS) Backup and Restore Devices.

PROCUREMENT PROFILE:**FY99****FY00***Quantity:**Various**Various****OPERATIONAL IMPACT***

The hardware and software platforms covered by the network infrastructure project will provide FMF and Supporting Establishment users a more robust and reliable networking capability with the added benefit of increased functionality and connectivity.

PROGRAM STATUS

As a COTS-based IT Abbreviated Acquisition Program (AAP), each sub-component project above is either in production and fielding or will undergo milestone approval for fielding in FY99. IOC is 4th Quarter FY99.

DEVELOPER/MANUFACTURER

TBD

PART 2 - Ground Combat Element Programs

The Ground Combat Element (GCE) is organized from resources and units of one or more divisions. This includes the division headquarters, infantry regiments, artillery regiments, and separate battalions. The mission of the GCE is to locate, close with, and destroy the enemy by fire and maneuver or repel the enemy's assault by fire and close combat. The GCE commander has the means to conduct combined-arms operations. It is imperative the GCE's resources be integrated with the full complement of MAGTF capabilities so they may be brought to bear against the enemy. For the MAGTF commander, the GCE provides a capability to exercise command and control, conduct maneuver, apply firepower, and provide force protection.

The following programs will enable the GCE to execute OMFTS through enhancements in mobility, survivability, and accuracy of fires.



MOBILITY

Advanced Amphibious Assault Vehicle (AAAV) Program

DESCRIPTION

The AAAV will join the MV-22 and LCAC as an integral component of the amphibious triad required to execute OMFTS. The AAAV will allow naval expeditionary forces to eliminate the battlefield mobility gap and, for the first time in the history of naval warfare, to maneuver ashore in a single, seamless stroke giving both the ships and landing forces sufficient sea space for maneuver, surprise, and protection. The AAAV's unique combination of offensive firepower, armor, nuclear, biological, and chemical (NBC) protection, and high-speed mobility on land and sea represent major breakthroughs in the ability of naval expeditionary forces to avoid an enemy's strengths and exploit its weaknesses. The AAAV remains the Marine Corps number one ground acquisition priority.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	0	0

OPERATIONAL IMPACT

The AAAV will allow immediate, high speed maneuver of Marine infantry units as they emerge from ships located over the visual horizon -- 25 miles and beyond. These forces will land in a manner that exploits the intervening sea and land terrain to achieve surprise and rapidly penetrates weak points in the enemy's littoral defenses to seize operational objectives.

PROGRAM STATUS

The AAAV Program was approved by the Defense Acquisition Board (DAB), which conducted a Milestone I review in 1995. In 1996, the PDRR contract was awarded. The AAAV prototype testing begins in FY00. Milestone II is planned for FY01 followed by the EMD Phase. LRIP begins in FY04 and full rate production starts in FY06. IOC is currently scheduled for FY06. The Marine Corps plans to buy 1,013 systems.

DEVELOPER/MANUFACTURER

General Dynamics Amphibious Systems

Armored Vehicle Driver's Thermal Viewer (AVDTV)

DESCRIPTION

The AVDTV is a replacement for the driver's current passive image intensification (I2) sights. It will allow the driver to have day and night vision that will penetrate battlefield obscurants. It also provides eye protection against battlefield laser devices since it is not a direct optic viewer. A total of 2,461 units in various configurations are required to support the M1A1 Main Battle Tank, Assault Amphibious Vehicle, Armored Vehicle Launched Bridge, M88 and LAV families of vehicles.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	<i>236</i>	<i>1149</i>

OPERATIONAL IMPACT

The need to enhance vehicle driver sights surfaced as a top priority after the conflict in Southwest Asia. The fog, smoke, and dust found in this environment seriously impaired daylight visibility and intense darkness rendered the I2 night sights almost useless. The I2 sights were also prone to "washout" when conducting road marches near vehicles using headlights or in the vicinity of oil fires. Vehicle commanders with thermal sights often had to use their primary weapon sights to assist the driver in maneuvering their vehicle. The AVDTV will overcome many of the drawbacks encountered with the current sights.

PROGRAM STATUS

The Army is the lead Service for this program. A Milestone III decision was made in February 1997 and a Marine Corps Acquisition Decision was made in April 1998. The Thermal Omnibus Contract was signed in June 1998 with Raytheon Systems. Initial procurement funding is in FY99 with fielding to support IOC in FY00 and FOC in FY04.

DEVELOPER/MANUFACTURER

Raytheon Systems Company

“Grizzly” Combat Breacher Vehicle (CBV)

DESCRIPTION

The Grizzly CBV is a full tracked, armored engineer vehicle designed for in-stride breaching of minefields and complex obstacles. Using an M1A1 Main Battle Tank chassis, it provides the ultimate in crew protection and vehicle survivability while offering the speed and mobility needed to keep pace with maneuver



forces. Its integrated systems provide maximum commonality with the current tank fleet. Major components of this system include a full-width mine clearing blade (MCB) with automatic depth control, a power driven excavating arm (PDEA), and a vehicle weapons station.

PROCUREMENT PROFILE:

FY99

FY00

Quantity:

0

0

OPERATIONAL IMPACT

A key element of the combined-arms force, Grizzly CBV will be employed as part of a synchronized assault. It will provide an in-stride breaching capability that allows the MAGTF commander to maintain the momentum of attack. Grizzly will be supported during breaching operations by both direct and indirect suppressive fires.

Current Army simulations run in the Combined Arms and Support Task Force Evaluation Model (CASTFOREM) show a Grizzly equipped force suffers 24 percent fewer combat losses when compared with current breaching methods. This is attributed to a 12 percent decrease in breach force exposure time due to the Grizzly's speed in overcoming obstacles.

PROGRAM STATUS

The Grizzly program received a favorable Milestone II decision in 1996 and entered the EMD Phase. Milestone III and Production Contract Award are scheduled in FY03.

DEVELOPER/MANUFACTURER

United Defense Limited Partnership (UDLP), York, PA

Assault Amphibious Vehicle (AAV) Reliability-Availability- Maintainability/Rebuild to Standard (RAM/RS) Program

DESCRIPTION

The AAV RAM/RS Program will replace the current AAV engine and suspension with Bradley Fighting Vehicle (BFV) derivative components and rebuild the vehicle to like-new standards. This will maintain the Marine Corps fleet of AAV7A1s in the most cost effective manner until they are replaced by the Advanced Assault Amphibious Vehicle (AAAV). The focus is on reliability, availability, and maintainability; safety; configuration; and operations and maintenance. To accomplish this mission the AAV Program Manager has initiated the RAM/RS program. Other related efforts on AAV include the Improved Reliable and Maintainable (IRAM) Transmission that will become part of AAV RAM/RS beginning in FY99 and SINCGARS Radio installation and fielding.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>		
<i>AAVP7A1 RAM/RS vehicles</i>	<i>599</i>	<i>0</i>
<i>AAVC7A1 RAM/RS vehicles</i>	<i>46</i>	<i>0</i>
<i>AAVR7A1 RAM/RS vehicles</i>	<i>35</i>	<i>0</i>

OPERATIONAL IMPACT

RAM/RS will return the AAV to its original performance specifications and retain combat readiness until fully replaced by the AAAV with 680 AAVs to undergo upgrade over the next four years.

PROGRAM STATUS

Milestone III review was successfully conducted in October 1998. Production commenced in FY99. A Fielding Plan is under development with the Active Component scheduled to receive initial AAV RAM/RS deliveries.

DEVELOPER/MANUFACTURER

Hull Modification - United Defense LP

Engines - Cummins

Rebuild Labor and Material - Marine Corps Logistics Bases
Maintenance Centers in Albany, GA and Barstow, CA

FIREPOWER

Lightweight 155mm Howitzer (LW155)

DESCRIPTION

The LW155 Howitzer will replace the aging M198 155mm Towed Howitzer as the only cannon system in the Marine Corps inventory. The LW155 retains the current M198 Howitzer's range yet will weigh no more than 9,000 pounds (compared to 16,000 pounds for the M198) and will be compatible with all existing and future of 155mm munitions. The reduction in weight will give the LW155 significantly improved transportability and mobility by sea, air, and land platforms. Capable of being transported by the medium lift MV-22 Osprey aircraft, the LW155 is designed for expeditionary operations requiring light, highly mobile artillery. The Marine Corps new Medium Tactical Vehicle Replacement (MTVR) truck will improve LW155's speed of movement and greatly increase the areas in which it can operate. A digital fire control suite will be added in FY04 that will include on-board position location, directional control, technical firing solution, and digital communications which will enhance semi-autonomous operations and a direct sensor-to-shooter capability.

PROCUREMENT PROFILE:

FY99

FY00

Quantity:

0

0

OPERATIONAL IMPACT

Because of its lighter weight, automated breech, auto-rammer, self-locating ability, and digital fire control, the LW155 Howitzer will give the MAGTF commander greater operational and tactical flexibility while increasing the responsiveness and efficiency of artillery units. The increased mobility of the LW155 will significantly improve artillery ship-to-shore and across-the-beach movement while increasing the survivability and lethality of artillery units supporting OMFTS.

PROGRAM STATUS

The LW155 is currently in the EMD Phase. Testing and competitive selection of a single howitzer candidate was completed in March 1997 with the award of a three year EMD contract. A production decision is scheduled for FY02 with an IOC in FY03. LW155 is a fully coordinated Marine Corps/Army program with the Marine Corps as the lead Service.

DEVELOPER/MANUFACTURER

Vickers Shipbuilding and Engineering Ltd, UK

Javelin

DESCRIPTION

The Javelin, formerly known as the Anti-Armor Weapons System-Medium (AAWS-M), is a medium-range, man-portable, “fire-and-forget” weapon system that will replace the Dragon anti-armor missile system currently deployed with infantry battalions. Javelin will satisfy the requirement to provide increased mobility, reliability, hit/kill probability, and effective range (2,500m+) against current and future armored threats. Javelin uses an infrared, fire-and-forget seeker, coupled with an advanced warhead and a top-down attack missile trajectory to provide its lethality. It can be fired from inside buildings and enclosures, making it an effective system for employment in urban terrain, as well as in open areas.



PROCUREMENT PROFILE:

Quantity: Command Launch Unit
Missiles

FY99

153
741

FY00

105
954

OPERATIONAL IMPACT

The Marine Corps has a continuing requirement for a man-portable, anti-armor weapon system capable of engaging and defeating any armor threat. Javelin will replace the Dragon medium antitank weapon system which is ineffective against the improved conventional and explosive reactive armor on exiting threat vehicles.

PROGRAM STATUS

The Army and the Marine Corps are jointly participating in the development of the Javelin with the Army as lead Service. Marine IOC is anticipated during FY99.

DEVELOPER/MANUFACTURER

Texas Instruments and Lockheed Martin (joint venture)

Predator

DESCRIPTION

The Predator, formerly known as the SRAW (Short Range Anti-tank Weapon) is a lightweight, man-portable missile system with a fly-over, shootdown attack profile, similar to that of the TOW-IIB. The warhead uses an explosively formed penetrator and is lethal against all current main battle tanks including those equipped with explosive reactive armor. As a fire-and-forget, 20-pound weapon with a disposable launcher, Predator has an effective range between 17 and 600 meters. Its inertial-guided autopilot increases the weapon's accuracy by determining range and lead prior to missile launch. The flight module increases the gunner's survivability with its soft launch capability. This capability also allows the weapon to be fired from enclosed spaces.

PROCUREMENT PROFILE:	FY99	FY00
Quantity:	0	0

OPERATIONAL IMPACT

Predator will provide infantry units with a weapon that will satisfy both the current and future needs for a lightweight anti-tank weapon with lethality against main battle tanks. Predator is designed to satisfy the light anti-tank weapon requirement and will complement the fielding of the Javelin medium anti-tank weapon.

PROGRAM STATUS

Predator is in the fifth year of the EMD Phase, which is scheduled for completion in FY00. Engineering model flights, completed in FY96, demonstrated design maturity and system performance. Developmental tests scheduled in FY99 will qualify, safety certify, and man-rate the system design. Operational tests are scheduled for FY00 with a Milestone III production decision planned for late FY00. Procurement of 18,190 weapons is planned from FY01 through FY10, with fielding to infantry units. Although Predator is a unilateral ACAT III program, the Army is currently pursuing development of the Multi-Purpose Individual Munition (MPIM) program that will use the launcher assembly and flight module from the Predator program. An existing MOA outlines the "Joint Effort" parameters concerning the sharing of technology between the Marine Corps Predator and the Army's MPIM programs.

DEVELOPER/MANUFACTURER

Lockheed Martin Electronics and Missiles, Orlando, FL

Anti-Armor Weapon System-Heavy (AAWS-H)

DESCRIPTION

AAWS-H will be the follow-on to the TOW missile system. It will incorporate improvements in range, lethality, survivability, and target acquisition. The AAWS-H missile may be delivered by the existing TOW launcher and sights with appropriate upgrades to include improved target acquisition systems. The concept of employment mirrors the current TOW system. The TOW will be removed as the Marine Corps transitions to the new family of lethal anti-armor weapons, the Javelin and Predator. Consequently, AAWS-H will be found only in the infantry regiments, tank battalions, and the light armored reconnaissance battalions within the Ground Combat Element of the Marine Corps. The acquisition objective for the AAWS-H is 754.

PROCUREMENT PROFILE:	FY99	FY00
-----------------------------	-------------	-------------

<i>Quality:</i>	0	0
-----------------	---	---

OPERATIONAL IMPACT

The AAWS-H is designed to address shortfalls in the current TOW system that render it unsuitable for the battlefield of the future. The TOW's large firing signature, long flight time, and wire guidance system combine to create a significant threat to the gunner and to reduce the system's survivability on the battlefield. The TOW missile is also vulnerable to currently fielded enemy countermeasures and its effectiveness will be further reduced with the proliferation of active protection systems (APS). More critically, the Marine Corps TOW inventory will reach the end of its shelf life within the next ten years. Acting now to identify and field a suitable replacement for the TOW enables the Marine Corps to maintain a capable heavy antitank weapon.

PROGRAM STATUS

AAWS-H was funded as a R&D effort beginning in FY98. The Marine Corps is monitoring current Army efforts for possible joint designation. IOC is required in FY04 with FOC in FY07.

DEVELOPER/MANUFACTURER

TBD

Anti-Personnel Obstacle Breaching System (APOBS)

DESCRIPTION

APOBS is a self contained, two man-portable obstacle breaching system packaged in two 65 pound backpacks. It can be deployed in less than 120 seconds, has a safe standoff distance of 25 meters, and creates a breach lane 0.6 meters wide by 45 meters long. APOBS is 90 percent effective against single impulse AP mines. Other mines, such as double impulse or magnetically fuzed mines, will remain intact unless sympathetically detonated or damaged by the explosives in APOBS. APOBS will replace the M1A2 bangalore torpedo demolition kit currently in the inventory.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	<i>100</i>	<i>778</i>

OPERATIONAL IMPACT

APOBS significantly improves the stand-off breaching capability of Marine Corps infantry and combat engineer elements against anti-personnel mines and wire obstacles. One APOBS employed by two Marines from a 25-meter stand-off distance creates a breach lane that presently requires three bangalore torpedo kits weighing 564 pounds, a squad of Marines, and 15 minutes to deploy.

PROGRAM STATUS

APOBS is scheduled for a Milestone III decision in 1st Quarter FY99. Systems produced in FY99 will be used for PPOT. Full rate production will begin in FY00. Marine Corps IOC is scheduled for 2nd Quarter FY02.

DEVELOPER/MANUFACTURER

- Naval Surface Warfare Center, Crane, IN
- Naval Surface Warfare Center, Indian Head, MD
- Roberts Research Laboratory, Torrance, CA

AN/PAS-13 Thermal Weapons Sight (TWS)

DESCRIPTION

TWS is a lightweight, low power, high performance, forward looking infrared (FLIR) device. TWS will augment existing crew-served night vision sights. It does not rely on visible light for operations, and is virtually unaffected by weather and obscurants (both natural and manmade). TWS operates by discerning the temperature variation between targets and their background. TWS is completely passive and, although primarily designed for target detection and engagement with Marine Corps crew served weapons, it can also be utilized for all weather surveillance. TWS will be a family of sights which will include a medium weapons sight (MTWS) and a heavy weapons sight (HTWS).

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	<i>0</i>	<i>0</i>

OPERATIONAL IMPACT

TWS provides 24 hour target detection, recognition, identification, and engagement capability for Marines armed with ground mounted crew served weapons. With this technology Marine gunners and crews can remain undetected while engaging threat targets. Currently, TOW and DRAGON anti-armor missiles, as well as numerous aircraft fire control systems use FLIR to ensure targeting capability in all weather, under the widest range of battlefield conditions. TWS provides ground units with a versatile long range all weather targeting capability against the complete range of threats (personnel, vehicle, armor, air) found on the modern battlefield.

PROGRAM STATUS

The Army and the Marine Corps are jointly participating in the development of TWS with the Army as the lead Service. A contract was awarded in FY98. Marine IOC is anticipated during FY01.

DEVELOPER/MANUFACTURER

Raytheon

LAV Service Life Extension Program (LAV-SLEP)

DESCRIPTION

The LAV Family of Vehicles (FOV) is a highly mobile vehicle for conducting reconnaissance, counter reconnaissance, security, limited offensive and delaying operations and other missions. The LAV FOVs include several mission role vehicles (MRV) which utilize light armor for protection from small arms, light machine gun fire, artillery projectile fragments, and mine fragments. Each MRV was designed for a specific mission function and was mounted on a common chassis. The LAV FOV consists of direct fire variants armed with 25mm guns (LAV-25) and TOW II Missiles (LAV-AT), Air Defense (LAV-AD) and support variants consisting of Command and Control (LAV-C2), Mortar (LAV-M), Logistics (LAV-L), Electronic Warfare (MEWSS) and Recovery (LAV-R) vehicles.

The LAC family of vehicles begin to reach twenty years of service life in 2003. The current LAV requires improvements in the areas of survivability, sustainability, lethality and mobility to counter emerging threats. Additionally, the LAV has reliability problems with major subsystems that are degrading readiness. The required operational availability, Mean Time Between Failure (MTBF) and the Mean Miles Between Operational Mission Failure (MMBOMF) are below desired levels. It is becoming more difficult and costly to maintain the LAV at desired levels of operation readiness.

OPERATIONAL IMPACT

The LAV FOV provides the MAGTF with a multi-mission, multi-role platform that provides a significant combat capability throughout the spectrum of conflict. The objective of the LAV-SLEP is to maintain the combat effectiveness and capabilities of the current LAV fleet through 2015 with enhanced performance where appropriate and affordable. Specific goals of the LAV-SLEP are to improve the survivability, lethality, and structural integrity of the LAV FOV, improve operational readiness and reduce fleet operation and support costs.

PROGRAM STATUS

The LAV-SLEP received a favorable Milestone 0 decision 23 October 1997. Approved for Demonstration and Validation (Milestone I) is anticipated in the 2nd Quarter of FY99.

DEVELOPER/MANUFACTURER

General Motors, Diesel Division in London, Ontario, Canada, began manufacturing the LAV FOVs in 1982 and completed delivery to the Marine Corps in April 1998.

Contractor for LAV-SLEP TBD.

LAV Enhanced Fire Support Platform (LAV-EFSP)

DESCRIPTION

The LAV-EFSP will be the replacement for the LAV 81 mm mortar (LAV-M). Capability Assessment of the current Light Armored Vehicle (LAV) mortar reveals deficiencies in range and lethality required to fulfill its assigned missions. The LAV-EFSP will incorporate improvements in range and lethality as well as automated fire control, speed, and accuracy. The LAV-EFSP will enhance the organic fire support capability of the LAR Battalion by providing increased capabilities over the current 81mm mortar in the LAV-M variant.



OPERATIONAL IMPACT

The LAV-EFSP is designed to address shortfalls in the current LAV-M that render it unsuitable for employment on the future battlefield. The current LAV-M variant fails to meet the minimum (threshold) range of 9,000 meters and a desired (objective) range of 12,000 meters set forth in the current Operational Requirements Document. The range of the current LAV-M, firing improved 81mm ammunition, is 5,700 meters which results in the inability to provide support for the LAR Battalion when operating on the extended battlefield. The LAV-EFSP will close a critical combat deficiency that exists within the area of LAV fire support.

PROGRAM STATUS

The Marine Corps anticipates a favorable Milestone 0 decision 22 April 1999 to begin evaluating alternative solutions as part of the Concept Exploration and Definition Phase activities.

DEVELOPER/MANUFACTURER

TBD

LAV Command and Control (LAV-C2) Modification

DESCRIPTION

The Marine Corps warfighting concept *Operational Maneuver from the Sea* (OMFTS) created the requirement to conduct deep maneuver over extended ranges.

The LAV-C2 modification will improve the operational effectiveness of the LAV-C2 as a command and control platform during mobile combat operations.

Enhancements to the LAV-C2 integrate the future Marine Corps C4I architecture and address the requirement for a mobile long range communication and

situational awareness capability, access to national assets, real-time battle space visualization, modular mission suites.



OPERATIONAL IMPACT

OMFTS created the requirement to conduct deep maneuver over extended ranges. The LAR Battalion is capable of executing independent operations at extended ranges for extended periods. The battalion requires a mobile long range tactical communications and situational awareness capability integrated into the future Marine Corps C4I architecture to conduct battlespace shaping operations in support of the Division/MAGTF.

PROGRAM STATUS

Amphibious Warfare Technology will conduct an Advanced Technology Demonstrator in FY99 in support of the LAV-C2 Modification. A favorable Milestone 0 decision is anticipated in April 1999 to begin Concept Exploration and Definition activities.

DEVELOPER/MANUFACTURER

TBD

PART 3 - Aviation Combat Element Program

The Aviation Combat Element (ACE) provides the MAGTF commander with enormous flexibility, mobility, and firepower. Part of the ACE's mission is to provide day and night, all-weather air support to the MAGTF. It accomplishes this mission through responsive offensive air and assault support. Offensive air support isolates the battlespace and provides timely and accurate close air support to maneuvering forces. Assault support ensures the rapid movement of combat power ashore, and provides a means to quickly maneuver ground forces in the battlespace. The following aviation programs enhance and complement the Marine Corps expeditionary nature and the execution of OMFTS.



AERIAL RECONNAISSANCE

Vertical Takeoff and Landing (VTOL) Unmanned Aerial Vehicle (UAV)

DESCRIPTION

The Navy and Marine Corps have initiated a program to develop and field a Vertical Takeoff and Landing (VTOL) Unmanned Aerial Vehicle (UAV). The VTOL UAV is planned to replace the current UAV system, Pioneer, beginning in FY03. The VTOL UAV will have the capability to takeoff and land from any ship possessing at least one helicopter landing spot, as well as to operate from austere unprepared sites ashore. Additional capabilities include a range of 200 km, speed of 135 kts, and service ceiling minimum of 15,000 ft. The initial payload will be an electro-optic/infrared camera with a laser designator.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	<i>0</i>	<i>0</i>

OPERATIONAL IMPACT

OMFTS is both manpower and technology intensive. This concept is based on leveraging technology to reduce both the risk and manpower requirements. The use of unmanned systems, specifically UAVs, is a key component of this concept. The Marine Corps plans to operate the Tactical UAV as an integral part of our MAGTF ACE. Initially integrated into our MEU (SOC) operations, this capability will eventually provide full time support to the MEF. The Marine Corps requires a very robust system that is easily deployed and sustainable to provide the MAGTF and JTF commanders maximum capability and flexibility.

PROGRAM STATUS

VTOL ORD is in staffing at the Flag level. The resource sponsor has full funding for a VTOL UAV capability for a new program start in FY00.

DEVELOPER/MANUFACTURER

The naval services are currently conducting a series of demonstrations to show the capability and maturity of VTOL UAV technology. Three companies (Bell Textron, SAIC and Bombardier) have introduced candidate systems that have the potential to meet this requirement. Phase one of a technology demonstration was completed in FY98.

ASSAULT SUPPORT

MV-22 Osprey

DESCRIPTION

The MV-22 Osprey is a tiltrotor, vertical/short takeoff and landing (V/STOL) aircraft designed to replace the current fleet of CH-46E and CH-53D aircraft. The MV-22 will join the AAAV and LCAC as an integral part of the amphibious mobility triad necessary to execute OMFTS. Specific missions include assault support, medium cargo lift, and fleet logistic support. The MV-22's design incorporates the advanced but mature technologies of composite materials, fly-by-wire flight controls, digital cockpits, airfoil design, and manufacturing. The MV-22 Osprey is capable of carrying 24 combat-equipped Marines or a 10,000 pound



external load. It also has a strategic self-deployment capability with a 2,100 nautical mile range with a single aerial refueling. The MV-22's 38-foot rotor system and engine/transmission nacelle mounted on each wing tip allow it to operate as a helicopter for takeoff and landing. Once airborne, the nacelles rotate forward 90 degrees, converting the MV-22 into a high-speed, high-altitude, fuel-efficient turbo-prop aircraft. The MV-22 is a multi-mission aircraft originally designed for use by all Services. The Marine Corps, Navy, and Air Force have committed to fielding this

unique aircraft. Procurement of the MV-22 remains the Marine Corps number one aviation acquisition priority.

PROCUREMENT PROFILE:

FY99

FY00

Quantity:

7

10

OPERATIONAL IMPACT

The MV-22 will be the cornerstone of Marine Corps assault support possessing the speed, endurance, and survivability needed to fight and win on tomorrow's battlefield. This combat multiplier represents a quantum improvement in strategic mobility and tactical flexibility for amphibious and prepositioned maritime forces.



PROGRAM STATUS

The program is currently in the EMD Phase with concurrent LRIP. Four production tooled EMD aircraft are supporting continued DT and OA at NAS Patuxent River, Maryland. Testing accomplishments include the completion of OA OT-IID, the final assessment prior to OpEval. The aircraft will conduct Sea Trials during FY99 and OpEval during FY00 in support of a FY01 IOC. Twelve fleet aircraft are in production with first deliveries scheduled during FY99. Seven aircraft are planned for production start in FY99. The total programmed buy for the Marine Corps, Navy, and Air Force is projected at 458 aircraft. The Marine Corps requirement is for 360 aircraft.

DEVELOPER/MANUFACTURER

Bell Helicopter Textron, Fort Worth, TX

The Boeing Company, Philadelphia, PA

H-1 Upgrade (4BN/4BW) Program

DESCRIPTION

The H-1 Upgrade (4BN/4BW) program replaces the current two-bladed rotor system on the UH-1N and AH-1W aircraft with a new four-bladed, all-composite rotor system coupled with a sophisticated fully-integrated, state-of-the-art cockpit. The UH-1N is a two-seat, combat utility helicopter that provides airborne C2, supporting-arms coordination, medical evacuation, maritime special operations, insertion/extraction, and search and rescue capabilities. The AH-1W is a multi-mission, two-seat, tandem cockpit, twin-engine attack helicopter capable of land and sea-based operations. It provides close air support under day, night, and adverse weather conditions. Additionally, it is capable of anti-armor/anti-helicopter operations, armed escort, armed and visual reconnaissance, and supporting arms coordination.



In addition to the new rotor system and cockpit, the H-1 Upgrade will incorporate a new performance-matched transmission, a four-bladed tail rotor and drive system, and upgraded landing gear for both aircraft. For the AH-1W, structural modifications to support six weapons stations will be completed. The 4BW increases aircraft agility, maximum continuous speed, and payload. The advanced cockpit reduces operator workload,

improves situational awareness, and provides growth potential for future weapons and joint interoperability. It integrates on-board planning, communications, digital fire control, self-contained navigation, night targeting, and weapons systems in mirror-imaged crew stations. The 4BN incorporates the 4BW rotor system and dynamic components, and maximizes commonality and supportability between the two aircraft. The 4BN program returns the required aircraft power margins and provides adequate mission payload and warfighting capability growth potential.

OPERATIONAL IMPACT

The H-1 Upgrade (4BN/4BW) program is designed to reduce life-cycle costs, significantly improve operational capabilities, resolve existing safety deficiencies, and extend the service life of both aircraft. Commonality between aircraft will greatly enhance the maintainability and deployability of the systems with the capability to support and operate both aircraft within the same squadron structure.

PROGRAM STATUS

The H-1 Upgrade (4BN/4BW) program continues in the EMD Phase. It completed the Critical Design Review in September 1998 without major discrepancies. The Marine Corps delivered four AH-1Ws and three UH-1Ns to Bell Helicopter for modification to support the EMD Phase. The first flight is scheduled for FY01.

DEVELOPER/MANUFACTURER

Integrated Cockpit - Litton and Rockwell Collins

Target Sight System - Lockheed Martin

Bell Helicopter Textron Inc.

KC-130J

DESCRIPTION

The KC-130 is a versatile multi-engine, tactical aerial refueler/-transport which supports all six functions of Marine aviation. It is the only long-range assault support capability organic to the Marine Corps. The KC-130J, with its increase in speed (+21 percent) and range (+35 percent), features an improved air-to-air refueling system and state-of-the-art flight station. The flight station includes 2 head-up displays (HUDs), night vision lighting, augment crew station, and fully integrated digital avionics architecture. An Allison AE 2100D3 propulsion system with full authority digital electronic controls, Dowty R391 advanced technology six bladed propeller system, and 250 knot cargo ramp and door complete the package that will provide the MAGTF commander with a state-of-the-art, multi-mission, tactical aerial refueler/transport well into the next century. The Marine Corps desires to replace its aging active fleet of KC-130Fs and Rs with the new KC-130J.

PROCUREMENT PROFILE:

FY99

FY00

Quantity:

2

0

OPERATIONAL IMPACT

The KC-130 provides both fixed-wing and helicopter tactical in-flight refueling; rapid ground refueling of aircraft or tactical vehicles; assault air transport of air landed or air delivered personnel, supplies and equipment; command and control augmentation; pathfinder; battlefield illumination; tactical aeromedical evacuation; and tactical recovery of aircraft and personnel (TRAP) support. This force multiplier is well-suited to the mission needs of the forward deployed MAGTF. The KC-130J will provide increased capability and mission flexibility to planners with its satellite communications system, survivability enhancements, night systems, enhanced rapid ground refueling, variable speed refueling paradrogue, and improved aircraft systems. Greater reliability and maintainability, coupled with lower operating and support costs, will result in lower life cycle costs for the KC-130J.

PROGRAM STATUS

The KC-130J is a commercial off-the-shelf aircraft currently in production. Initial delivery of the KC-130J to the Marine Corps is anticipated during August 2000.

DEVELOPER/MANUFACTURER

Lockheed Martin

OFFENSIVE AIR SUPPORT

AV-8B Harrier Remanufacture (Reman)

DESCRIPTION

The AV-8B Harrier is a single-seat, transonic attack aircraft. Its vertical/short takeoff and landing (V/STOL) design gives it the capability to operate from a variety of land and seabased platforms. The current Harrier II (plus) model incorporates an improved engine, night warfighting capabilities, and the APG-65 multimode radar. The remanufacture program will upgrade 72 older day-attack aircraft to the current radar/night-attack standard at approximately 80 percent of the cost of a new aircraft.



PROCUREMENT PROFILE:

FY99

FY00

Quantity: (Reman)

12

12

OPERATIONAL IMPACT

The MAGTF relies heavily on its organic aviation to offset limited artillery and tank assets and to provide fire support. The V/STOL capability of the AV-8B allows forward basing to facilitate timely close air support to Marine ground forces. The AV-8B operates from "L" Class ships, from rapidly constructed expeditionary airfields, from forward sites such as roads, and from smaller or damaged conventional airfields. The addition of night-attack and radar capabilities allows the Harrier to be responsive to the needs of the MAGTF at night and in adverse weather.

PROGRAM STATUS

The remanufacture of 72 aircraft is programmed through FY01.

DEVELOPER/MANUFACTURER

Boeing/BAE

F/A-18C/D Hornet

DESCRIPTION

The F/A-18 Hornet is a twin-engine, supersonic, strike-fighter aircraft. It fulfills both the air-to-air and air-to-ground mission requirements and can operate from conventional airfields and aircraft carriers. The F/A-18Cs delivered since FY90 have increased night and marginal weather capability, including a color moving map display, night vision goggle-compatible lighting and a navigation forward-looking infrared (NAVFLIR) sensor. The two-seat version, F/A-18D, incorporates all warfighting capabilities of the F/A-18C and will include a tactical reconnaissance capability. This aerial reconnaissance capability, ATARS, provides near real-time aerial imagery to the MAGTF and will deploy with four systems per VMFA (AW) squadron beginning in FY99.



PROCUREMENT PROFILE:

FY99

FY00

Quantity:

0

0

OPERATIONAL IMPACT

The F/A-18C provides modern multi-mission offensive and defensive anti-air capability and offensive air support. The F/A-18D provides the MAGTF with a platform capable of tactical air control and reconnaissance while retaining the capabilities of the F/A-18C. Both aircraft provide powerful and flexible air support and suppression of enemy air defenses. The maintainability and multi-mission capabilities of the F/A-18 make it well-suited to the needs of the MAGTF in an austere expeditionary environment.

PROGRAM STATUS

The Marine Corps anticipates programmed upgrades to enhance the current capabilities of the F/A-18 with digital communications, tactical data link, and tactical reconnaissance systems. This will ensure that our F/A-18s remain viable and relevant until replaced by the STOVL Joint Strike Fighter (JSF).

DEVELOPER/MANUFACTURER

The Boeing Company
Northrop Grumman
Hughes

STOVL Joint Strike Fighter (JSF)

DESCRIPTION

The STOVL JSF will be a single engine, stealthy, supersonic, strike fighter aircraft capable of short takeoffs and vertical landings. It will combine the basing flexibility of the AV-8 with the multi-role capabilities, speed, and maneuverability of the F/A-18 to fulfill both the air-to-ground and air-to-air requirements of the Marine Corps. The aircraft is intended to have a very low RF and IR signature, with superior capabilities over both of the aircraft it will replace (AV-8B, F/A-18C/D) in the areas of survivability, lethality, and supportability.

PROCUREMENT PROFILE:

FY99

FY00

Quantity:

0

0

OPERATIONAL IMPACT

The JSF will provide a multi-mission offensive air support and an offensive/defensive anti-air capability. The JSF will also provide the MAGTF with a platform capable of tactical air control and tactical reconnaissance. Additionally, the aircraft will be able to provide suppression of enemy air defenses. The needs for this aircraft are focused on readiness, expeditionary capability, the combined arms concept, and the conduct of OMFTS.

PROGRAM STATUS

The JSF is a joint program with the Air Force, Navy, and Marine Corps. Presently the program is in the Concept Demonstration Phase, with two contractors, Boeing Aircraft Company and Lockheed Martin, building an aircraft that will fly in FY00. The Marine Corps anticipates first aircraft delivery in FY08 with IOC of the first JSF squadron in FY10. Total procurement for the Marine Corps will be 609 aircraft.

DEVELOPER/MANUFACTURER

Boeing/Lockheed Martin

Hughes/Westinghouse

Pratt & Whitney/General Electric



PART 4 - Combat Service Support Element

Medium Tactical Vehicle Replacement (MTVR) Program

DESCRIPTION

The Medium Tactical Vehicle Replacement (MTVR) Program is an ACAT II program dedicated to the procurement of a cost-effective, state of the art system to replace the existing fleet of M809 and M939/A1 series of medium tactical trucks.



The acquisition program is being run in two phases. In the first phase, two contractors, AM General (AMG) Corporation of South Bend, Indiana and Oshkosh Truck Company (OTC) of Oshkosh, Wisconsin, were each awarded EMD prototype contracts in November 1996 to design, produce, and deliver 5 MTVR configured vehicles and to support government conducted testing. After completion of DT in April 1998, these two contractors submitted production proposals. Based on these proposals, and the results of the Phase I testing, one contractor will receive a production contract. The winning contractor will also be required to develop a special bodies program for dumps, wreckers, and tractors. The Marine Corps has a requirement for 7,380 vehicles.

PROCUREMENT PROFILE:**FY99****FY00***Quantity:**240**880***OPERATIONAL IMPACT**

The July 1991 mission area analysis (MAA) for close combat identified deficiencies in the Marine Corps current medium truck fleet's mobility and load carrying capacity. Additional operational experience in Southwest Asia reinforced the notion that the existing fleet had some significant deficiencies in traveling off hard surface roads when fully loaded and/or when towing the M198 howitzer. The current 5 ton weight limitation restricts the amount of water, fuel, and ammunition the vehicle can carry, even before it "*cubes out*." The current vehicle's lack of horsepower and limited wheel travel allows only marginal off road operation. The Marine Corps does not have a vehicle in the 7 to 12 ton range like the Army's Heavy Expanded Mobility Tactical Truck (HEMTT). The medium truck is the Marine Corps prime logistical bulk load vehicle and the primary system used to move supplies, equipment, and ammunition to forward units. Increasing the payload, speed, and ability to negotiate rough terrain is essential to meeting the Marine Corps needs across all spectrums of conflict.

PROGRAM STATUS

Production proposals from the two EMD prototype contractors were received in September 1998. A source selection evaluation board is currently reviewing the proposals and a production contract will be awarded in FY99.

DEVELOPER/MANUFACTURER

TBD

Light Tactical Vehicle Replacement (LTVR) Program - HMMWVA2 Program

DESCRIPTION

The Marine Corps light tactical vehicle fleet consists of approximately 17,600 HMMWVs. Fielding of the HMMWV began in 1986 and was completed in 1995. The current fleet of Marine Corps HMMWVs will begin to reach the end of their economic useful life in the year 2000. Largely due to age and operations in the highly corrosive marine environment, significant numbers of HMMWVs currently require replacement. Subsequently, the LTVR program will be renamed the "HMMWVA2" Program and reflected as such on all future documentation.



PROCUREMENT PROFILE:

Quantity:

FY99

628

FY00

700

OPERATIONAL IMPACT

The HMMWVA2 will be equipped with numerous system component upgrades to improve vehicle safety (improved brake system), reliability (improved engine, transmission, electrical start and drive train systems), availability, maintainability, and durability (corrosion prevention and access panels).

PROGRAM STATUS

A Milestone I/III decision was approved in April 1998 for the procurement of the HMMWVA2 series vehicle to meet the requirements of the LTVR program. The optimum fielding plan, based on the estimated 14-year service life of the HMMWV, involves replacement of 7 percent (1/14th) of the fleet each year. The initial deliveries of HMMWVA2 series and the IOC are scheduled for FY99. FOC is anticipated in FY13.

DEVELOPER/MANUFACTURER

AM General Corporation

Third Echelon Test System (TETS)

DESCRIPTION

TETS will provide 3rd and 4th echelon maintenance activities of the Combat Service Support Element with a support capability for all Marine Corps commodity areas. TETS will provide diagnostic testing and fault isolation from line replaceable units (LRUs) to shop replaceable units (SRUs). The SRU is the smallest electronic component repairable or replaceable at the intermediate unit level. Organizations tasked with providing maintenance support throughout the MAGTF must be prepared to perform their missions in a variety of combat and non-combat expeditionary environments. Maneuver warfare stresses the importance of minimizing the time required to make combat essential equipment fully operationally capable. Maintenance units must be capable of repairing systems as far forward as practical.

PROCUREMENT PROFILE:	FY99	FY00
Quantity:	65	111

OPERATIONAL IMPACT

The MAGTF has numerous systems and equipment that contain electronic printed circuit cards. However, the Marine Corps has no man-portable test capability that can be used to fault isolate and repair LRUs down to the faulty circuit card assembly. This deficiency frequently requires maintenance personnel to evacuate equipment to rear areas for required repairs. As weapons systems become more complex, the amount of MAGTF equipment containing secondary repairables (SECREPS) with replaceable electronic components is increasing. The Marine Corps has recognized the need for, and has fielded, automated test equipment to support maintenance of equipment containing LRUs/SRUs. TETS will significantly enhance 3rd and 4th echelon maintenance support capabilities.

PROGRAM STATUS

TETS is in the Production Phase. Contract options for production quantities were exercised in June 1998 after Milestone III approval.

DEVELOPER/MANUFACTURER

ManTech Systems Engineering Corp, Chantilly, VA

1500 Gallon per Hour (GPH) Reverse Osmosis Water Purification Unit (ROWPU)

DESCRIPTION

The Marine Corps currently uses the 600 GPH ROWPU to produce potable water from salt, brackish, and fresh water sources in amphibious and expeditionary environments. The 1500 GPH ROWPU will incorporate technological advances that will produce a significantly more efficient water purification system. The new system will more than double the production rate of potable water while maintaining the same physical envelope or "footprint" as the 600 GPH unit.



PROCUREMENT PROFILE:

FY99

FY00

Quantity:

0

0

OPERATIONAL IMPACT

The 1500 GPH ROWPU is a Joint DoD effort intended to replace the existing 600 GPH ROWPU on a 1 for 2 basis. It is designed to meet the Services water usage demands and to eliminate deficiencies identified during Operation Desert Shield/Desert Storm.

PROGRAM STATUS

The Army is the lead Service in this Joint Army-Marine Corps development. The Milestone III decision is schedule for FY00 with competition for a production contract scheduled for FY01. Marine Corps IOC is schedule for FY03.

DEVELOPER/MANUFACTURER

U.S. Army Tank-Automotive & Armaments Command (TACOM),
Warren, MI

Naval Facilities Engineering Service Center, Port Hueneme, CA

Marine Air-Ground Task Force (MAGTF) Logistics Automated Information Systems (LOGAIS)

DESCRIPTION

MAGTF LOGAIS is a family of coordinated, mutually supporting, automated systems designed to support deliberate and crisis action/time-sensitive planning for deployment, employment, and redeployment of MAGTFs. MAGTF LOGAIS consists of the following systems: MAGTF II, MAGTF Deployment Support System II (MDSS II), Computer Aided Embarkation Manifest System (CAEMS), Transportation Coordinators Automated Information System (TC-AIMS), and the MAGTF Data Library (MDL). Each sub-system is capable of operating independently and performing discrete functions. The mission of MAGTF LOGAIS is to provide commanders the necessary tools to support deliberate and crisis action planning, deployment, employment, and redeployment of a MAGTF in independent, joint, and combined operations.

OPERATIONAL IMPACT

MAGTF II is used by Marine Corps planners in operation plans (OPLANs) development for estimating lift “*footprints*”, comparing alternative force structures, forecasting lift and sustainability requirements, and rapidly generating and refining Time-Phased Force Deployment Data (TPFDD) to meet short-fused closure deadlines. Additionally, it provides the Marine Corps data interface to the Joint Operation Planning and Execution System (JOPEs). MDSS II is the unit level deployment planning and execution system that provides MAGTFs and subordinate elements the ability to develop and tailor plan-specific force structures (personnel, supplies, and equipment) for multiple OPLANs and to monitor real-time element combat readiness (personnel and equipment attainment) status. MDSS II serves as the source of actual movement and embarkation data at level V detail (national stock number, social security number, serial number, etc.) for other MAGTF LOGAIS subsystems. CAEMS provides an interactive tool for producing amphibious, commercial shipping (black bottom), and Maritime Prepositioned Ships (MPS) load plans (template deck diagrams) and associated standard and embarkation reports (dangerous cargo manifest, trim stress and stability, etc.). MDSS II is the initial source of data. TC-AIMS supports planning and execution for movement of forces from the Continental United States (CONUS) and overseas points of origins to ports of embarkation (POE) and from port of debarkation (POD) to destinations. TC-AIMS provides in-transit visibility to the U.S. Transportation Commands (TRANSCOMs) Component Commands

(TCCs) and the Defense Transportation System (DTS). TC-AIMS can be used for the redeployment of forces. MDL is the data dictionary tool used to facilitate gathering of valid source data for use by all the MAGTF LOGAIS family of systems. MDL imports required data from mainframe systems, performs data quality checks, and distributes accurate data to the MAGTF LOGAIS family of systems.

FY 99 Future Events:

November - Milestone III Decision

December - Hardware Modernization

690 Desktops

320 Laptops

248 DCDs

133 AIT Printers

December - Ver 5.0 Technical Upgrade

June/July - Ver 5.1 Fielding

PROGRAM STATUS

MAGTF LOGAIS is currently pending a Milestone III decision. This will allow for the procurement of hardware for the upgrade of existing platforms that support this FDP&E tool, and will allow the user to take advantage of existing technical advances in the software.

DEVELOPER/MANUFACTURER

Stanley Associates, Alexandria VA

MDL

SRA Corporation, Arlington VA

Logistics Vehicle System Replacement (LVSR) Program

DESCRIPTION

The LVSR is the Marine Corps heavy tactical wheeled vehicle fleet replacement. It will be comprised of two separate externally helicopter transportable modules that are coupled together to form an integral all-wheel drive vehicle. The LVSR will fulfill various mission lift roles, to include: a self-loading transport for standardized containers; the ribbon bridge and bridge boat; the PLS Flat rack; bulk/break-bulk/palletized cargo; oversized engineer equipment; wrecker recovery; and semi-trailer transporter. The LVSR will address current heavy fleet deficiencies in off-rode mobility, payload capacity, available power, ride quality, stability, and braking. The LVSR Technology Demonstration vehicle is being fabricated and will feature, an electronically controlled power train, on-board diagnostics, independent suspension, central tire inflation (CTI), and an anti-lock braking system (ABS) to improve vehicle safety, performance, and reliability, availability, maintainability, and durability (RAM-D).

PROCUREMENT PROFILE:	FY99	FY00
Quantity:	0	0

OPERATIONAL IMPACT

The current Logistics Vehicle System (LVS) is quickly approaching the end of its service life. Because of numerous deficiencies and changes in warfighting doctrine, the LVS cannot adequately support the requirements of mechanized forces and other high tempo operations over an enlarged battlespace. The LVSR will be crucial to the ability of the MAGTF to execute current and future doctrine in an expeditionary environment.

PROGRAM STATUS

The LVSR is currently in the Concept Exploration Phase. A Technology Demonstrator is now being fabricated to prove out concepts and technology insertions. This Demonstrator will undergo DT and an EOA to support alternative solution recommendations and the development of the ORD and performance specifications.

DEVELOPER/MANUFACTURER

TBD

Military Motorcycle Replacement Program

DESCRIPTION

The M1030-B1 Military Motorcycle provides an important means of alternative transportation to the MAGTF commander. It is readily available for the transport of communication traffic when electronic systems failure threatens mission success. This vehicle is capable of transporting 2 passengers, documents, and light cargo. It is used for military police support, convoy control, tactical/urban reconnaissance, and transportation of forward observers. The military motorcycle is able to travel improved and unimproved roads, cross-country, and congested urban terrain.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	<i>180</i>	<i>240</i>

OPERATIONAL IMPACT

The military motorcycle is a valuable asset to the MAGTF commander. The M1030-B1 is internally transportable via all models of utility and cargo helicopters, the MV-22 Osprey, and fixed-wing cargo aircraft. Primarily fielded as a communication asset, the motorcycle role has expanded as its versatility has been demonstrated in such duties as long range reconnaissance, urban reconnaissance, and deployment of snipers and forward observers. It is also used as security for long motor vehicle convoys. Combat Service Support Elements can dispatch riders with small cargoes weighing up to 50 pounds for quick delivery to units up to 300 miles away. As a commercial-off-the-shelf/non-developmental item, the logistical supportability of the military motorcycle is enhanced due to the vast numbers employed by the civilian sector.

PROGRAM STATUS

Milestone III is scheduled for 1st Quarter FY99.

DEVELOPER/MANUFACTURER

Hayes Diversified Technologies, Hesperia, CA



PART 5 - Other Support to the MAGTF

Nuclear, Biological and Chemical (NBC) Defense Program

The Marine Corps is pursuing a number of enhancements that will increase the effectiveness of personnel and units within an NBC environment. Over the past decade, there has been a proliferation of chemical and biological agents. Marines must be able to defend themselves and continue to operate in an NBC environment. The following efforts are on going:



Chemical/Biological Incident Response Force (CBIRF)

DESCRIPTION

The Chemical/Biological Incident Response Force (CBIRF) is a Marine Corps unique organization that provides rapid initial consequence management to mitigate the effects of a chemical and/or biological terrorist incident in support of a designated civilian or military commander. The CBIRF will also provide training to *“first responders* nationwide and assist with the development of new equipment, techniques, and procedures for responding to the use of chemical and biological agents.

OPERATIONAL IMPACT

The CBIRF is equipped with a variety of state-of-the-art items that will enable the unit to perform its mission in chemical/biological detection, decontamination, medical care, security, and service support. Procurement efforts to support the CBIRF are ongoing and involve many different kinds of equipment and manufacturers. Initial procurements involve state-of-the-art, readily available, commercial-off-the-shelf, certified items.

PROGRAM STATUS

A prime vendor logistics support contract was awarded to Battelle Memorial Institute in August 1998. This contract, providing support to the CBIRF, incorporates innovative logistics support methods currently demonstrated in private industry. The support to be provided includes supply chain management, spare parts, end item/equipment repair and/or replacement, calibration support, warranty management, inventory control, forecasting, engineering services, technical services, configuration management, and training and deployment support.

DEVELOPER/MANUFACTURER

COTS multiple manufacturers

Non-Lethal Weapons (NLW) Capability Set

DESCRIPTION

The NLW Capability Set contains the weapon systems, munitions, and equipment required to satisfy appropriate NLW employment. Its components are designed primarily to incapacitate personnel or materiel, while minimizing fatalities, permanent injury to personnel, and undesired damage to property and the environment. The NLWs are not required to have no probability of producing fatalities or permanent injuries, but must significantly reduce those probabilities when compared to traditional military weapon systems, munitions, and equipment. The various NLWs are intended to augment the warfighters and enhance their role in Military Operations Other Than War, rather than to replace or supplant existing weapons. The set is intended to provide a Marine Corps core NLW capability and a repository for future NLW components.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	<i>3</i>	<i>6</i>

OPERATIONAL IMPACT

The NLW Capability Set is designed to counter a variety of threats for which Marines have previously lacked the appropriate tools to address. Components are ideally suited for use against noncombatants who, by their presence or actions, jeopardize a unit's ability to accomplish its assigned mission.

PROGRAM STATUS

The program is currently fully funded. However, more funding will be required over the years to keep the NLW Capability Set current and to achieve the highest degree of commonality attainable among the Services.

DEVELOPER/MANUFACTURER

Commercial Integrator - Aardvark Tactical Inc., Arcadia, CA

Truck, Firefighting, Aircraft Crash and Structure Fire, A/532P-19A (P-19A) Rebuild Program

DESCRIPTION

The P-19A series of Crash, Fire, and Rescue (CFR) vehicles are used by the Marine Corps to support airfield operations, rescue personnel in aircraft accidents, and provide fire protection for aircraft and structures. The Marine Corps has used the P-19A variant as its sole CFR vehicle since the mid 1980's. P-19A vehicles exceeded their expected 12 year economic useful life (EUL) in 1997. While the P-19A has provided excellent service, it has started to experience combat readiness problems. In 1992 it had a readiness rating of 84 percent that has since dropped to as low as 81 percent. To correct this readiness problem and to maintain the vital aircraft CFR capability, a three-year program to rebuild the P-19A tactical vehicles began in 1998.



PROCUREMENT PROFILE:

FY99

FY00

Quantity:

37

38

OPERATIONAL IMPACT

The P-19A is critical to Marine Corps airfield operations. The MAGTF requires a firefighting truck to conduct expeditionary airfield operations and to provide rescue protection for the Aviation Combat Element and structural firefighting protection for tactical airfield-related facilities and miscellaneous support vehicles. This vehicle must be mobile, reliable, and flexible. The P-19A is also capable of operating in extreme weather conditions and in a NBC environment.

PROGRAM STATUS

The P-19A program was designated an Acquisition Category (ACAT) IV (M) Minor Upgrade program in August 1996. A combined Milestone I/III ADM was signed in September 1996. Defense Construction Supply Center (DCSC) Columbus, OH, was awarded a contract for the P-19A Rebuild program in July 1998.

DEVELOPER/MANUFACTURER

Crash Rescue Equipment Services, Dallas, TX

Training Systems and Devices

DESCRIPTION

The development of basic individual skills, combined with challenging individual and collective sustainment training, is essential, especially during peacetime. Realistic standards-based and performance-oriented training are used to enhance combat readiness. The Marine Corps is continuing to explore and field a number of new systems and simulators that will contribute significantly to training effectiveness while reducing overall training costs.




■ ***The Indoor Simulated Marksmanship Trainer-Enhanced (ISMT-E)*** is an improved version of the ISMT, an interactive video-based marksmanship simulator. ISMT provides marksmanship skills training for the following weapons: M16A2, M9, M249, M240G, MK19, AT4, SMAW, M203, MP5, SRAW/Predator, shotgun, and mortars. The ISMT is a classroom simulator that provides four firing positions and the Infantry Squad Trainer (IST) is an expanded version of the ISMT that provides 12 firing positions. These systems provide realistic training scenarios that exercise marksmanship and weapons skill, small-unit capabilities, and judgmental shoot/no shoot situations. Additional capabilities include forward observer (FO) training, night vision devices firing, and a shoot-back mechanism that is compatible with MILES. ISMT-E includes of a

conversion from video to digital based graphics. This will enable Marines and small-units to operate in a Distributed Interactive Simulation (DIS)/High Level Architecture (HLA) environment, thus providing the capability to interface with other training simulators and systems, i.e. Combat Vehicle Appended Trainer (CVAT) and Range Instrumentation System(RIS). This upgrade will also provide for the elimination of various weapon simulator shortages for systems already fielded and the development of a new weapon simulator for the M-4 and a Riverine Assault Craft Weapons Engagement Training System (RACWETS). The RACWETS will allow crews to become and remain proficient in the employment of weapons, while the Riverine Assault Craft (RAC) is in motion, without the use of live fire or specialized ranges. IOC is scheduled for FY01 and FOC for FY03

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:ISMT-E</i>	<i>0</i>	<i>22</i>
<i>IST-E</i>	<i>0</i>	<i>25</i>

DEVELOPER/MANUFACTURER


Firearms Training Systems (FATS)

 *The Multiple Integrated Laser Engagement System (MILES) 2000* is the next generation of MILES equipment. It consists of a family of low-power laser devices simulating the direct fire characteristics of weapons organic to an infantry battalion. MILES 2000 provides the capability to conduct realistic reinforced battalion-size, force-on-force engagements. MILES 2000 will allow for longer operating time, improved exercise feedback, and more realistic weapons’ effects. Additionally, MILES 2000 will utilize a MILES Target Interface Device that will make MILES interoperable with RETS and PITS ranges. FOC will occur during FY99.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	<i>10 Bn Sets</i>	<i>0</i>


DEVELOPER/MANUFACTURER

Cubic Defense Systems

 *The Tank Weapon Gunnery Simulator System (TWGSS)* and the Precision Gunnery System (PGS) are MILES compatible, precision gunnery devices for the M1A1 tank and LAV-25 respectively. These devices use retro reflectors and a scanning laser that replicate the actual trajectory and ballistics of a round being fired. A total of 107 TWGSSs and 126 PGSs are fielded throughout the Marine Corps. TWGSS and PGS completed fielding in FY98.

DEVELOPER/MANUFACTURER


Saab Training Systems

 ***The MAGTF Tactical Warfare Simulation (MTWS)*** is a computer-assisted warfare gaming system to support the training of Marine Corps commanders and their staffs. MTWS will support command post exercises (CPXs) in which maneuver forces, supporting arms, and the results of combat are modeled by the system. MTWS is used in field exercises (FEXs) in which all or parts of the combat forces are actual military units. During a FEX, the system is used to record and monitor the actions of live forces rather than simulating those actions as during a CPX. MTWS provides a full spectrum of combat models required to support Marine Corps exercises. The major functional areas are ground combat, air operations, fire support, ship-to-shore movement, combat service support, combat engineering, and intelligence. The system provides limited play in electronic warfare, communications, and NBC warfare. Since 1995 MTWS has been fielded to each MEF, MCB Quantico, and to the Marine Corps Air-Ground Combat Center (MCAGCC). The current software release, vl.5, contains enhanced functional capabilities in all domains (land, air, and sea) as well as an initial interface with TCO, IAS and IDASC through the JMCIS protocol. Software vl.7, scheduled for release in FY99, will provide an after action review system for the users in the FMF to analyze exercise results. IOC was in August 1995 and FOC in June 1996.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity: Software Releases</i>	<i>2</i>	<i>2</i>

DEVELOPER/MANUFACTURER

Visicom Lab, San Diego, CA

 ***The Combat Vehicle Appended Trainer (CVAT)*** is a deployable, high fidelity, full-crew, precision gunnery, networked tactical trainer that supports the M1A1 main battle tank and the light armored vehicle. CVAT will satisfy the Marine Corps requirements for the creation of a synthetic battlefield to include ground forces and C3I for individual crew training, as well as maneuver and tactics training up to and including the platoon level. CVAT will incorporate the actual operational weapons platform into the training system, thus allowing the Marines to train as a full crew in their combat vehicles. Over \$26M was reserved in POM 00 for an IOC planned for FY 01 and FOC in FY 02.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	<i>0</i>	<i>0</i>

DEVELOPER/MANUFACTURER

TBD

❑ *The Remoted Engagement Target System (RETS)* is an automated system of pop-up stationary and moving targets for infantry, armor, and anti-armor training. The system offers computer driven tactical scenarios or it can be operated in a manual mode with group or individual targets raised on command. RETS significantly enhances the capability to train individual Marines, crew-served weapons teams, small units, and combat vehicle crews in the employment of their weapons systems under the most realistic combat conditions possible. Fourteen of the total planned 40 ranges have been completed; six are currently under construction at various bases; and seven are planned for construction prior to FY05. The remaining thirteen ranges will compete for funding in future POM cycles.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	0	0

DEVELOPER/MANUFACTURER

Lockheed-Martin, Huntsville, AL

❑ *The Precision Gunnery Training System (PGTS)* provides precision gunnery training via simulation for the TOW and Dragon missile systems. The system is a video disc/computer-based system that provides training scenarios for real-time missile trajectory simulation, visual and aural effects, performance feedback, and evaluation. Modifications to improve functionality, reliability, and maintainability have been made to the PGTS systems fielded earlier. The system is fully fielded with a total of 116 PGTS systems currently in use throughout the Marine Corps.

DEVELOPER/MANUFACTURER

Universal Systems and Technology, Inc.

Indoor - SIMTECH, Holon, Israel

Outdoor - Lockheed Martin, Solartron Systems, Hertfordshire, England

❑ *The Range Instrumentation System (RIS)* will equip Marines, their weapons, aircraft, and vehicles with instrumentation that will provide automatic position and engagement data necessary to adjudicate engagements by all types of forces and weapons to include aviation and indirect fire. RIS will accommodate both force-on-force and live fire training and will exercise all elements of the MAGTF. It will provide an after action review capability that will be a tool to correct training deficiencies and reinforce positive learning events. It will include computer-generated forces and smart targets that will add realism to the training battlefield. RIS will be designed to be transportable and mobile to accommodate training outside of normally accepted ranges. RIS

successfully competed in POM 00 for fielding of one range at Camp Lejeune (\$35.3M) to be completed in FY05.

PROCUREMENT PROFILE:	FY99	FY00
Quantity:	0	0

DEVELOPER/MANUFACTURER

TBD

❑ *The Light Armored Vehicle-Full Crew Interactive Simulator Trainer (LAV-FIST)* is an interactive, graphics based, appended precision gunnery training system. It trains crews on a wide range of gunnery tasks in a stationary, powerless vehicle. Sensors permit crews to use actual vehicle controls to simulate target engagement and movement over terrain. It has targets, high-resolution scenery, and visual effects presented through video monitors appended to vehicle vision apertures. An instructor/operator manages training and provides after-action review. Six LAV-FISTs were procured for the Reserves to train crews. FOC was completed in FY98.

PROCUREMENT PROFILE:	FY99	FY00
Quantity:	0	0

DEVELOPER/MANUFACTURER

Universal Systems & Technology, Inc., Winter Park, FL

Raydon Corp., Daytona Beach, FL

❑ *The Closed Loop Artillery Simulation System (CLASS)* is a training simulation system that will provide training for forward observers, fire direction center personnel, and howitzer crews in a closed loop system requiring no live ammunition. It is designed to be used both in garrison and in the field to improve the proficiency of battery personnel and reduce the overhead costs associated with field training and live fire. CLASS will be fielded to both Active and Reserve artillery units. It will be used primarily to ensure that personnel associated with the firing batteries are proficient prior to actual live fire exercises. It will be designed to be deployable and can be used for effective training without any equipment leaving the gun park. CLASS successfully competed in POM 00 with FOC planned for FY05.

PROCUREMENT PROFILE:	FY99	FY00
Quantity:	0	0

DEVELOPER/MANUFACTURER

TBD

Distance Learning (DL) Program

DESCRIPTION

Distance Learning is a Marine Corps-wide, distributed Intranet that enables Marines to learn via interactive media when and where needed. DL is composed of electronic DL courseware, hardware, software, and network components necessary to distribute electronic instruction over enterprise wide, metropolitan, and local area networks.

The Marine Corps Institute (MCI) will function as the Distance Learning Center (DLC) charged with overall program oversight and quality control. Individual bases and stations serve as either Functional Learning Centers (FLC) tasked with courseware development or Area Learning Centers (ALC) where Marines will access DL tools via the Learning Resource Center (LRC) or Video Tele-Training. Deployed Marines will access DL via deployable LRCs.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	<i>4</i>	<i>5</i>

OPERATIONAL IMPACT

Distance Learning will allow the Marine Corps to keep pace with our rapidly expanding education and training needs.

PROGRAM STATUS

Four fielding sites will receive DL pilot program hardware in FY99. These sites are Camp Lejeune, Camp Pendleton, Marine Corps Air-Ground Combat Center, and Marine Corps Institute. IOC is scheduled for FY02 and FOC for FY06.

DEVELOPER/MANUFACTURER

TBD

Joint Service Light Nuclear, Biological, and Chemical Reconnaissance System (JSLNBCRS)

DESCRIPTION

JSLNBCRS is a joint service program to locate, mark, and verify the existence of radiological, biological, and chemical hazards in support of land operations.

PROCUREMENT PROFILE:

FY99

FY00

Quantity:

0

0



OPERATIONAL IMPACT

Using JSLNBCRS, the MAGTF commander will be able to maneuver forces to avoid contaminated areas. This system will provide units with accurate and rapid NBC combat hazard information. JSLNBCRS will reduce deficiencies identified in Mission Area (MA) 23 and close combat, and will support

the capability to conduct operations in an NBC environment as stated in the Marine Corps Master Plan.

PROGRAM STATUS

JSLNBCRS anticipates using LAVs operating with division reconnaissance elements and HMMWVs deployed by joint forces near airfields, forward arming and refueling points (FARPs), on main supply routes, and in support of command posts displacements. Each platform is composed of a vehicle and an equipment suite subsystem. IOC is scheduled for FY02.

DEVELOPER/MANUFACTURER

TRW Inc., Tactical Systems Division

Joint Service Lightweight Integrated Suit Technology (JSLIST)

DESCRIPTION

JSLIST is a system which consists of two major components, lightweight chemical biological (CB) protective garments and multipurpose overboots. Each component is based on state-of-the-art material technologies that have undergone extensive user evaluation and field and laboratory testing.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	<i>37,823</i>	<i>33,893</i>

OPERATIONAL IMPACT

This system provides the highest level of protection against current CB threats while reducing heat strain, weight, and bulk to an absolute minimum. Balancing CB protection and heat strain management with Service-defined mission requirements optimizes user performance. Although the main thrust of JSLIST has been to develop the next generation CB protective system, considerable focus also remains on ensuring full compatibility and integration with equipment such as developmental masks and body armor, and developmental systems such as Land Warrior, Air Warrior, and Mounted Warrior.

PROGRAM STATUS

This Marine Corps lead program is under the management of the four Service Program Managers. JSLIST has joint participation in every aspect of the program from management, system planning, system and component design, material selection, test execution, and data assessment. The program structure and approval processes have been configured to assure full user participation so those common and service unique requirements are met. Milestone III occurred in April 1997 and production commenced in August 1997. The JSLIST P3I program will structure an iterative process that will allow for periodic technology insertion of tested approved materials into the JSLIST production cycle, such as special operations command requirements and improved gloves.

DEVELOPER/MANUFACTURER

- Tradewinds Inc.
- Creative Apparel
- Group Home Foundation

Joint Biological Point Detection System (JBPDS)

DESCRIPTION

JBPDS is a joint program with the Army as the lead Service. It provides real-time biological agent detection, warning, and identification. This system is self-contained and portable and requires minimal operations and maintenance support.

PROCUREMENT PROFILE:

Quantity:

FY99

4

FY00

4



OPERATIONAL IMPACT

The JBPDS will be fielded on a variety of platforms: vehicle mounted, shipboard, fixed-site, and man-portable. Unit NBC specialists will maintain the JBPDS. The JBPDS can utilize alternate power sources and provide two-way communications through a telemetry link, a secure command and control radio frequency link, or a two-wire surface link. The JBPDS delivers both a visual and aural warning upon detection of possible biological agents.

PROGRAM STATUS

IOC is scheduled for FY99.

DEVELOPER/MANUFACTURER

Lockheed-Martin

Small Unit Biological Detector (SUBD)

DESCRIPTION

The SUBD is an ongoing R&D initiative to provide a lightweight, real-time, biological agent detector. The SUBD is a three year effort that will initially develop promising bio-detection technologies and will culminate in an integrated bio-detector based on the most current bio detection technology available.

PROCUREMENT PROFILE:

Quantity:

FY99

0

FY00

0



OPERATIONAL IMPACT

The focus of this program is to provide the user with a hand-held bio-detector that is both sensitive and specific.

PROGRAM STATUS

The SUBD will be initially fielded to the CBIRF and will be transitioned to all Services for inclusion in future bio-detection programs.

DEVELOPER/MANUFACTURER

Battelle Memorial Institute

CALSPAN

ECHO Technologies

Joint Warning and Reporting Network (JWARN) Program

DESCRIPTION

The Marine Corps is the lead Service for implementation of the JWARN program. The JWARN will provide the joint forces with a comprehensive analysis and response capability to minimize the effects of hostile NBC attacks or accident/incidents. It will provide the capability to employ NBC warning technology that will collect, analyze, identify, locate, report, and disseminate NBC threats.

PROCUREMENT PROFILE:

FY99

FY00

Quantity:

0

0



OPERATIONAL IMPACT

The JWARN will be compatible and integrated with joint service C4I2 systems. The JWARN will be located in C2 centers at the appropriate level, defined by service specific annexes, and employed by NBC defense specialists and other designated personnel. It will transfer data for decisions for disseminating warnings down to the lowest level on the battlefield. It will

provide additional data processing, production of plans and reports, and access to specific NBC information to improve the efficiency of limited NBC defense personnel assets. The JWARN will accelerate the warfighter's response to an enemy NBC attack.

PROGRAM STATUS

The JWARN Program is being executed through a Joint Integrated Product Team (JIPT) process. Urgent need requirements submitted by the Marine Corps CBIRF and the Army 5th Corps led to an acquisition community decision to separate the program into three phases. Phase I, Interim/Standardization (IS), is the initial acquisition and fielding of commercial-off-the-shelf (COTS) and Government-off-the-shelf (GOTS) software to standardize NBC warning and reporting throughout the Marine Corps, Army, Navy, and Air Force. The Phase I IS program will provide the following products: Phase IA - COTS NBC analysis software

package for DOS, UNIX, and GOTS models; Phase IB - COTS NBC analysis software package with Automated Nuclear, Biological, and Chemical Information System (ANBACIS) Battlefield Management functionality for operation on the Army's Maneuver Control System/Phoenix (MCSP); and Phase IC- COTS NBC analysis software package with ANBACIS Battlefield Management functionality for Windows 32 Bit Environment. The Phase II Block Upgrade (BU) provides the total JWARN capability by integrating NBC Detector Systems, NBC Warning and Reporting Software Modules, and NBC Battlefield Management software modules into the Services C4I2 systems. The Phase III PIP will include artificial intelligence modules for NBC operations, upgrade to match future C4I2 systems, and standard interface modules for use in future detectors.

DEVELOPER/MANUFACTURER

TBD

Joint Services Lightweight Standoff Chemical Agent Detector (JSLSCAD)

DESCRIPTION

The JSLSCAD is a lightweight, passive, standoff, chemical agent detector capable of providing on-the-move, 360 degree coverage. It can be employed from a variety of tactical and reconnaissance platforms at distances up to 8 kilometers while detecting an agent cloud within 15 seconds of entering the detector's field of view. It is a second-generation chemical agent vapor detector which improves upon the capabilities of the M21 (RSCAAL) first generation system.



PROCUREMENT PROFILE:

FY99

FY00

Quantity:

0

0

OPERATIONAL IMPACT

JSLSCAD will increase troop protection and maneuver unit combat capabilities. It will provide enhanced early warning for contamination avoidance. When avoidance is not possible, it will provide extra time for warfighters to don full protective equipment.

PROGRAM STATUS

Milestone II was in September 1996 and IOC is scheduled for FY02.

DEVELOPER/MANUFACTURER

Intellitec

Automatic Chemical Agent Detector Alarm (ACADA)

DESCRIPTION

The ACADA is an automatic, man-portable, point sampling, field alarm capable of monitoring air in ambient atmosphere inside a collective protection environment (CPE) and when mounted on mobile or stationary standard wheeled and tracked vehicles.

PROCUREMENT PROFILE:	FY99	FY00
<i>Quantity:</i>	<i>695</i>	<i>0</i>

OPERATIONAL IMPACT

The system will detect and monitor the presence of hazardous agents, provide an audible and visible alarm, and provide essential data to the affected unit. The ACADA detects 6 chemical agents. The ACADA will operate on battery and/or line power. The system will interface with automated battlefield communication systems.

PROGRAM STATUS

The ACADA replaces the M8A Chemical Agent Alarm and is currently being fielded to FMF units.

DEVELOPER/MANUFACTURER

Graysby Dynamics Lts, UK

Joint Service Fixed Site Decontamination (JSFXD) Program

DESCRIPTION

The JSFXD Program provides the Services with a capability to decontaminate fixed sites, ports of entry, airfields, logistics support bases, and key command and control centers which have been exposed to the damaging effects of NBC warfare agents, toxic industrial materials (TIMs), or contaminant's.

PROCUREMENT PROFILE:

FY99

FY00

Quantity:

0

0



OPERATIONAL IMPACT

The JSFXD program is a new program. It aims to remove, detoxify, neutralize, and eliminate NBC/TIM hazards on the integrated battlefield in a safe manner. The program will incorporate both a family of decontaminants and a family of applicators. The decontaminant portion includes a R&D effort to study and evaluate those

liquids, solids, semi-solids or gases which will rapidly and effectively decontaminate personnel, equipment, facilities, resources and areas. This effort may result in several items being selected to decontaminate the breadth of military resources. The applicator system(s) will be a complimentary R&D project to develop the methods or equipment to apply the appropriate decontaminant to personnel, equipment, and areas.

PROGRAM STATUS

The program seeks to minimize the logistics and manpower requirements of current methods and to develop an environmentally friendly decontaminant. This program is a seven year, \$41M R&D and procurement effort.

DEVELOPER/MANUFACTURER

TBD

Advanced Ground Laser Eye Protection (AGLEP)

DESCRIPTION

The AGLEP is a Joint Army and Marine Corps program. It will be issued to personnel assigned to MAGTFs for specific contingencies and to Marine Security Force personnel.

PROCUREMENT PROFILE:

FY99

FY00

Quantity:

0

0

OPERATIONAL IMPACT

The system will provide protection from frequency agile lasers operating anywhere within the electromagnetic spectrum. No increase in personnel is required to operate or maintain this system.

PROGRAM STATUS

The Army's Natick Research and Development Engineering Center will conduct a market survey to evaluate possible manufacturers. This item is to be procured in sufficient quantities to adequately sustain MEFs during extended operations in an NBC

environment. Equipment being fielded will ensure Marines can fight in all environments. All of the this equipment is reliable and easy to maintain.

DEVELOPER/MANUFACTURER

Principal Design Activity - Natick Research and Development Engineering Center and MARCORSYSCOM



SAN ANTONIO Class LPD 17

DESCRIPTION

The SAN ANTONIO Class LPD 17 is the newest amphibious ship class. It is designed to provide the large lift capacity necessary for the rapid build-up of combat power ashore. In addition, it will significantly enhance the operational flexibility of a three ship Amphibious Ready Group. It will carry about 700 Marines, have a vehicle stowage capacity of 25,000 square feet, a cargo stowage capacity of 27,000 cubic feet, a well deck sized for two LCACs, and a flight deck capable of simultaneous operation of two CH-53E Super Stallions, two MV-22 Osprey tiltrotor aircraft, or four CH-46 Sea Knight helicopters. This ship class is optimized for size, flexibility, and economy.



PROCUREMENT PROFILE

FY	96	97	98	99	00	01	02	03	04	05	06	07	08	09	Total
Funded	1	0	0	1	2	2	2	2	2						12
Deliver								2	1	2	2	2	2	1	12

OPERATIONAL IMPACT

Current emphasis on regional contingencies and rapid deployment by naval expeditionary forces increases the importance of amphibious lift assets. The LPD 17 class is required to overcome shortfalls of amphibious lift assets caused by the decommissioning of aging LPDs, LSTs, LKAs, and LSDs. When construction is completed, the 12 SAN ANTONIO Class LPDs will provide the lift necessary to meet crisis response and forward presence requirements.

PROGRAM STATUS

The 1990 DoN Integrated Amphibious Operations and Marine Corps Air Support Requirements Study reaffirmed the SAN ANTONIO Class requirement. The MNS was validated in September 1990 and the DAB approved Milestone 0 in November 1990. Preliminary design work was completed in November 1993 and was followed by commencement of contract design. The contract for the lead ship was awarded in December 1996. Initial delivery is scheduled for FY03.

DEVELOPER/MANUFACTURER

Avondale Industries

Joint Military Intelligence Program (JMIP)

DESCRIPTION

The JMIP, established in 1995, provides oversight of selected DoD intelligence programs and resources under the Deputy Secretary of Defense. The JMIP consists of the following three component programs:

- ☐ Defense Cryptologic Program (DCP)
 - ☐ Defense Imagery and Mapping Program (DIMAP)
 - ☐ Defense General Intelligence and Applications Program (DGIAP)
- and the following DGIAP sub-component programs:
- ☐ Defense Airborne Reconnaissance Program (DARP)
 - ☐ Defense Intelligence Counterdrug Program (DICP)
 - ☐ Defense Intelligence Tactical Program (DITP)
 - ☐ Defense Space Reconnaissance Program (DSRP)
 - ☐ Defense Intelligence Special Technology Program (DISTP)

The JMIP funds the RDT&E and procurement associated with the Marine Corps JSIPS National Input Segment (NIS) at Camp Pendleton, CA, and the Common Imagery Ground/Surface System (CIGS) TEG development in the DARP. The NIS, operated by the Marine Corps Imagery Support Unit (MCISU), became fully operational in 1996. The DARP also funds the Unmanned Aerial Vehicles (UAV) System RDT&E and procurement to include the Marine Corps Pioneer and the Tactical UAV programs. Although in Navy funding, the DARP has provided the RDT&E and procurement dollars for the ATARS. The Marine Corps will receive 31 ATARS for use on the F/A-18D aircraft.

DCP RDT&E funding has led to marked improvements in the tactical SIGINT collection and processing capabilities of the Marine Corps. DCP investment led to fielding and/or improvements to the TPCS, TCAC, and MEWSS. Under the Radio Battalion Modernization and Concept Exploration project, DCP RDT&E investment improved radio direction-finding capability, special intelligence communications, and signal intercept capability. 18 sets of RREP-SS-1 were fielded in FY98 through RDT&E funds provided by the DCP and a \$2.7 million Congressional procurement plus-up to the Marine Corps.

JMIP support to the Marine Corps also provides funds for pay and allowances, travel, and per diem for Marine Corps Reserve intelligence personnel to augment and support CINCs, CINC-supported exercises and activities, and other joint production and exercise functions.

National Foreign Intelligence Program (NFIP)

DESCRIPTION

The NFIP is composed of 12 programs and the CIA Retirement and Disability System (CIARDS). These NFIP programs are not organizational but rather financial accounts that provide funding for intelligence operations and activities. The Marine Corps participates directly in 3 component programs of the Director of Central Intelligence sponsored NFIP:

❑ ***Consolidated Cryptologic Program (CCP)*** - The CCP provides for Marine Corps participation in the United States Cryptologic System. The Marine Support Battalion, working in concert with the National Security Agency and the Naval Security Group, supports the worldwide SIGINT and INFOSEC needs of national decision makers and operational commanders. These Marines routinely augment MAGTFs in direct support of expeditionary forces, such as in Bosnia and in joint exercises.

❑ ***General Defense Intelligence Program (GDIP)*** - The GDIP funds Service and Defense Intelligence Agency (DIA) distributed production functions of the Marine Corps Intelligence Activity (MCIA). It also provides for Marine Corps participation in the Defense HUMINT Service (DHS), on CINC staffs, and in the Joint Intelligence/Joint Analysis Centers (JIC/JAC) at USPACOM, USACOM, USSOUTHCOM, USCENTCOM, and USEUCOM. GDIP provides augmentation pay for Marine Corps Reserve personnel performing intelligence duties at the national and theater level. To date, FY99 GDIP funds have provided over 3,000 man-days of Reserve intelligence support.

❑ ***Foreign Counterintelligence Program (FCIP)*** - The FCIP provides for Marine Corps participation in DoN counterintelligence activities through the Naval Criminal Investigative Service.

The NFIP allocates resources to support reimbursable or direct costs and compensation for over 900 Marines and Marine Corps civilian personnel as well as fund-limited operations and maintenance activities.

Concept



Chapter

Fiscal Resource Overview

As the Nation's force in readiness chartered by the 82d Congress "to be the most ready when the Nation is least ready", the Marine Corps has and always will fund near-term readiness first. For more than seven years, however, topline constraints have forced us to make tough decisions in striking a balance between near-term and long term readiness. We have funded near-term readiness at the expense of essential procurement, infrastructure, and quality of life programs. In sum, defense resources have been inadequate to both sustain today's Corps and enable our transition to the Marine Corps of the future.

Chapter **V**

Fiscal Resource Overview

As the Nation's force in readiness chartered by the 82d Congress "to be the most ready when the Nation is least ready", the Marine Corps has and always will fund near-term readiness first. For more than seven years, however, topline constraints have forced us to make tough decisions in striking a balance between near-term and long term readiness. We have funded near-term readiness at the expense of essential procurement, infrastructure, and quality of life programs. In sum, defense resources have been inadequate to both sustain today's Corps and enable our transition to the Marine Corps of the future.



We have aggressively pursued every opportunity to mitigate the impact of our funding shortfalls. We have implemented improved business practices; bought used items instead of new ones, such as recapped tires; and remanufactured major aviation end items such as the AV-8B and the AH-1W/UH-1N. We are pursuing the most effective options for replacing our ground equipment, to include the 5-ton truck, the HMMWV, and the 155 millimeter howitzer. In support of the QDR recommendation for a modest reduction in force structure, we cut 1,800 active duty Marines and 3,000 reserve Marines in order to free up modernization funds -- and we made these cuts without eliminating a single *"trigger puller"* from our operating forces! Unfortunately, while buying some time, even these actions were not enough to solve our modernization and infrastructure problems.

Recognition of our readiness concerns has lead to a topline increase in the FY 2000/2001 budget proposal. If strictly adhered to over the FYDP, it will allow us to take significant steps toward the solution to some of our modernization and infrastructure problems -- steps which are absolutely critical in order to ensure we remain the Nation's *"911 force"* into the 21st Century.

As this budget was being developed, we had reached a critical point in the life cycle of our ground and aviation equipment. As we face virtual block obsolescence of crucial end items, Marines are required to spend more and more time and money to maintain aging equipment and weapons systems. By continuing to pour scarce resources into maintaining our legacy equipment and weapons systems at the expense of modernizing the force, we have been *"scraping off the skin cancer"* of near-term readiness and allowing our long-term readiness cancer to metastasize.

Ground equipment has been funded well below the historical, or *"steady state"* level of \$1.2 billion for the last seven years. This extended period of underfunding has driven the recovery rate to \$1.8 billion per year for ground equipment modernization. The increases provided in this budget allow us to achieve the *"steady state"* level in FY00, and the recovery level in FY05.

As with ground modernization, aviation has been underfunded for many years. This budget accelerates the V-22 to the QDR goal of 30 aircraft per year in FY03 vice FY04; finances the V-22 gun; accelerates the 4BN/4BW program; funds two KC-130Js, F/A-18A upgrades, Reserve CT-39 replacement, and spares.

Investment in infrastructure has also long been a bill payer for near-term readiness. The backlog of maintenance and repair (BMAR) at our

bases and stations is approximately \$700 million in FY99. Prior to increases provided in this budget, BMAR was growing by approximately \$60 million per year, and will exceed \$1 billion by FY03, far exceeding our goal to reduce BMAR to \$100 million by FY10. The current budget proposal arrests the growth and stabilizes BMAR at approximately \$700 million.

In terms of military construction, the Marine Corps fiscally constrained goal is to replace physical plant every 100 years by investing one percent of plant value in new construction; the industry standard is every 50 years. Prior to increases provided in this budget, our replacement cycle was almost 200 years. The current proposal allows us to attain the 100 year replacement cycle by FY02.

Investment in family housing has been underfinanced for many years, resulting in a deficit of 10,000 units and 12,000 units which require revitalization. The Defense Planning Guidance is to rehabilitate all existing housing units by FY10. This budget proposal accelerates Marine Corps compliance with the DPG goal from FY14 to FY12. The budget does nothing, however, to address the 10,000 unit deficit.

The individual Marine is our most important asset, and compensation is a Marine's most important quality of life issue. This budget fully funds compensation issues which are critical to the recruitment and retention of the highest quality men and women for our career force -- pay raises equivalent to full ECI, pay table reform, and restoral of the existing retirement plan.

The current budget proposal allows for significant progress toward solving some of our most pressing needs, however, solution to our problems will not be achieved overnight. To meet tomorrow's challenges and build the "*expeditionary force in readiness*" our Nation requires will take a sustained period of funding support for our modernization program.

This chapter reviews the FY 2000/2001 Department of Defense (DoD) Budget resources allocated to the Marine Corps.

Fiscal Resources

Funds to support the defense strategy are programmed, budgeted, authorized, appropriated, obligated, and finally expended to cover Service investment and operational requirements. Total Obligational Authority (TOA) refers to the total financial resources available. Budget Authority (BA) refers to financial resources appropriated by Congress. The DoD

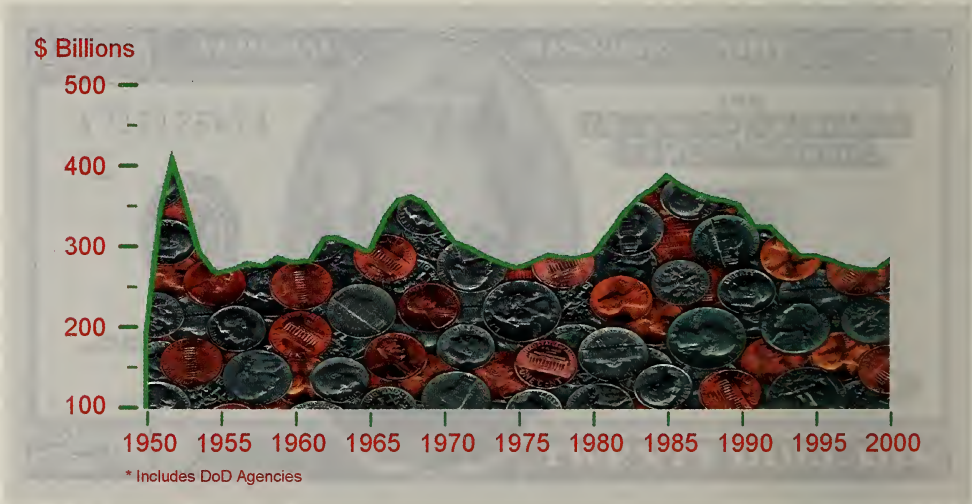
Planning, Programming, and Budgeting System establishes procedures for the allocation of DoD TOA. Figure 5-1 displays the BA for all of DoD from FY96 through the FY00 Budget request. The FY00 level of \$270.3 billion represents a 4 percent increase over the FY99 level.

FIGURE 5-1: BUDGET AUTHORITY*



There is a general perception that defense spending has increased over the past few years. However, figures 5-2 and 5-3 show otherwise. Figure 5-2, which shows the long term trend in budget authority for the Department of Defense, depicts more than a decade of real decline in defense spending. Defense spending is now 27 percent below the FY85 peak year and on a par with the FY75 post Vietnam level.

FIGURE 5-2: DDD BUDGET AUTHORITY TREND* (\$B)



Viewed in terms of the percentage of total Federal spending, figure 5-3 shows how Defense spending has been on a downward trend since the early 1960s where it reached a level of about 50 percent in FY62. Since then mandatory spending has increased to the 15 percent, and is slightly

above Net Interest and payments. Meanwhile, defense spending has declined to a level just below this.

FIGURE 5-3: BUDGET TRENDS

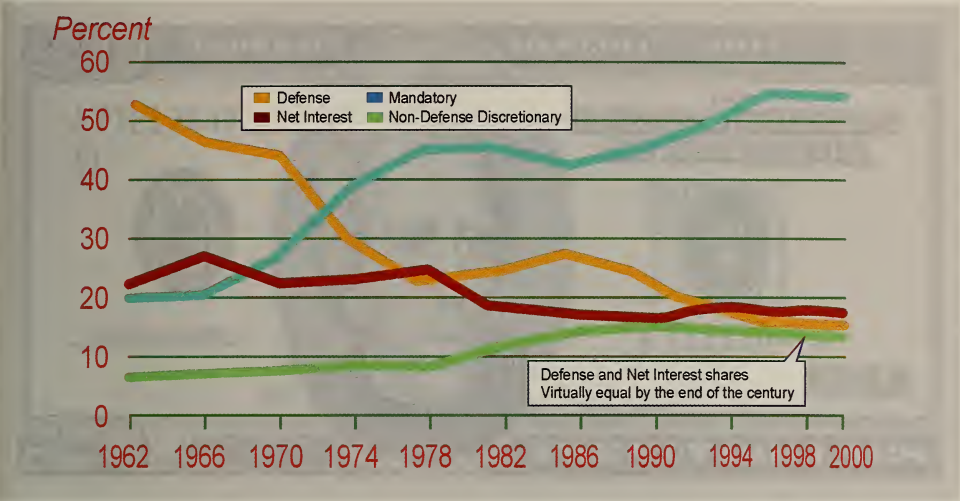


Figure 5-4 is a comparison of the relative amount of resources provided to each Service. Although the Marine Corps share is comparatively small, it leads the DoD in converting every dollar into credible combat power.

FIGURE 5-4: SERVICE COMPARISON OF TOA IN THE FY00 000 BUDGET* (FYOP \$B)

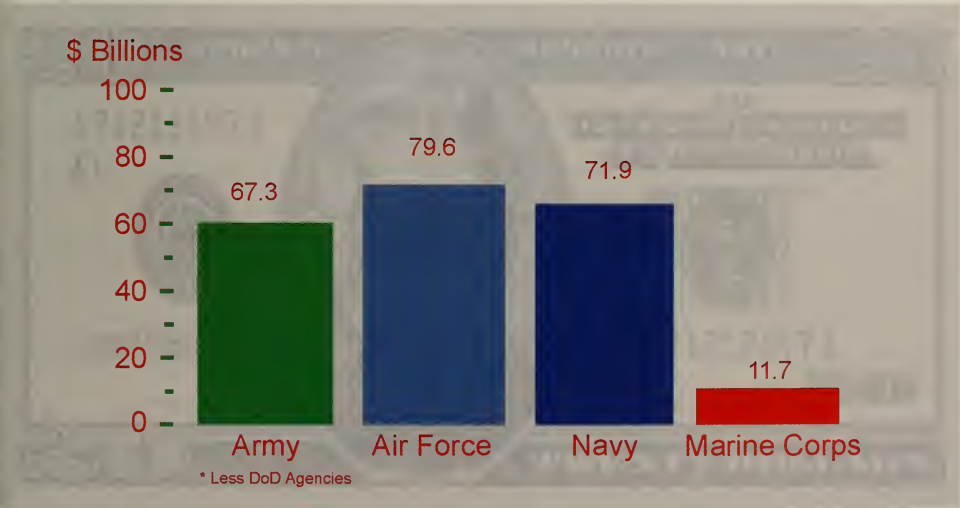
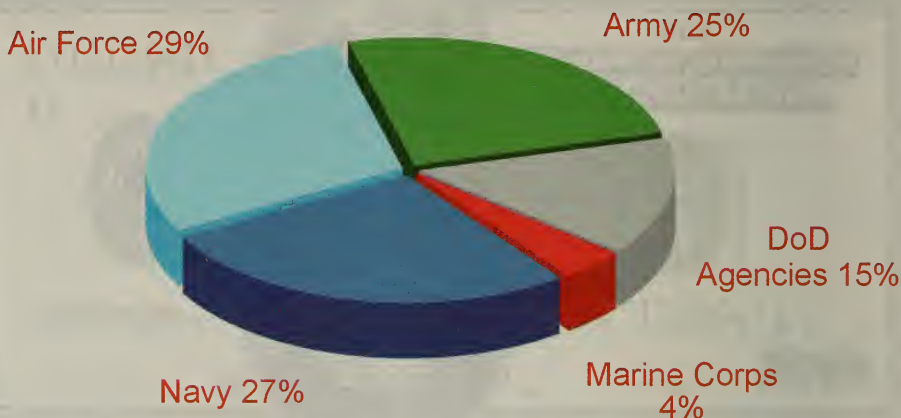


Figure 5-5 depicts the percentage of DoD funds budgeted by each Service. Each Service's TOA is subsequently divided into appropriations.

FIGURE 5-5: 000 FY00 TOA SHARES*



Appropriations

An appropriation is the legal apportionment by an act of Congress to incur obligations for specified purposes and to make payments from the Treasury of the United States. Funds may be expended only for the purpose appropriated. The following are Marine Corps appropriation categories, with a brief synopsis of what each provides:

❑ ***Military Personnel, Marine Corps (MPMC)*** - Active and retired pay, allowances, individual clothing, interest on deposits, expenses for organization movements, expenses for temporary duty, travel between permanent duty stations, and subsistence.

❑ ***Reserve Personnel, Marine Corps (RPMC)*** - Pay, allowances, clothing, subsistence, gratuities, travel, and related expenses for personnel of the Marine Corps Reserve.

❑ ***Operation and Maintenance, Marine Corps (O&MMC)*** - Expenses for support of the FMF, equipment and facilities maintenance, civilian employee pay, travel and transportation, training, consumable supplies, recruiting and advertising, base operations, and base communications.

❑ ***Operation and Maintenance, Marine Corps Reserve (O&MMCR)*** -

Expenses for operation and maintenance, including training, organization, and administration, repair of facilities and equipment, hire of passenger motor vehicles, travel and transportation, recruiting and advertising, base operations, and communications for the Marine Corps Reserve.

❑ ***Procurement, Marine Corps (PMC)*** - Expenses for the purchase and

manufacture of guided munitions, tracked combat vehicles, guided missiles and equipment, communications and electronics, support vehicles, engineer and other equipment, spares, and repair parts.

❑ ***Procurement of Ammunition, Navy and Marine Corps (PANMC)*** -

Expenses for the purchase and manufacture of ammunition, to include all unguided munitions. (Prior to FY98, the Marine Corps ammunition budget was submitted as BA-1 of the PMC budget.)

The following Navy appropriations include functional areas for which the Marine Corps programs and budgets. The complete Marine Corps TOA includes both Marine-unique appropriations described above, as well as resources from the following appropriations:

❑ ***Military Construction, Navy (MILCON)*** - Acquisition, construction,

and installation of permanent public works, naval installations, and facilities for the Navy and the Marine Corps.

❑ ***Family Housing, Marine Corps (FHMC)*** - Construction,

improvements, operation, maintenance, repair, and design of Marine Corps housing and ancillary facilities required at bases and stations.

❑ ***Military Construction, Navy Reserve (MCNR)*** - Construction,

acquisition, expansion, rehabilitation, and conversion of facilities for the training and administration of the Reserve components of the Navy and Marine Corps.

❑ ***Research, Development, Test, and Evaluation, Navy (RDT&E, N)*** -

Research, development, test, and evaluation in the areas of basic research and technology development, advanced technology development, strategic and tactical programs, intelligence and communication programs, and overhead and support costs of the Marine Corps RDT&E effort.

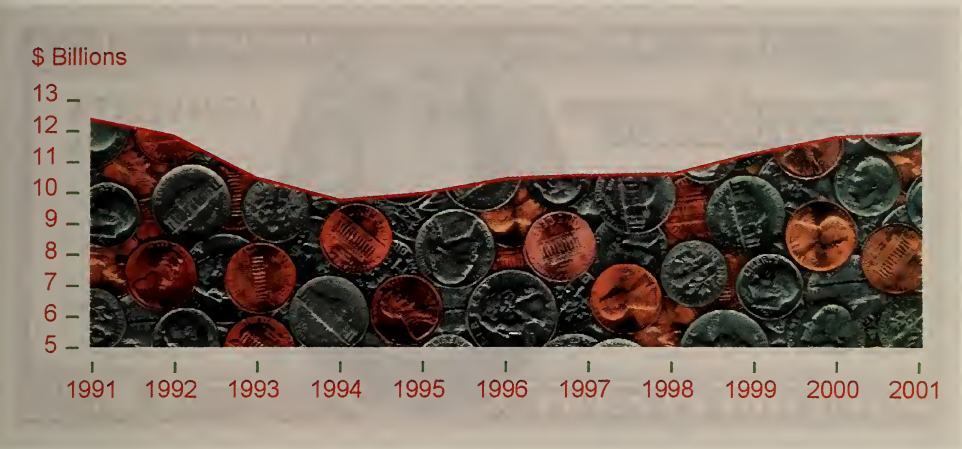
Figure 5-6 displays the TOA allocated to each of these appropriations. As indicated, while R&D and O&MMC show steady increases and PMC substantially improved over FY98, this has been at the expense of MILCON and FHMC. These trends reflect the Marine Corps difficulty in improving modernization while maintaining readiness.

FIGURE 5-6: MARINE CORPS TOA (FYDP \$M)

	<i>FY98</i>	<i>FY99</i>	<i>FY00</i>	<i>FY01</i>
MPMC	6,026	6,216	6,545	6,844
RPMC	390	407	409	424
O&MMC	2,466	2,591	2,559	2,695
O&MMCR	116	119	123	130
PMC	476	857	1,137	1,130
PANMC	122	181	156	165
R&D (Grnd)	261	366	382	358
MILCON	180	146	52	278
FHMC	233	197	154	241
MCNR	32	5	2	14
Sub-Total	10,303	11,085	11,519	12,278
QoL, Defense	45	35	121	0
Fam Hsg Impv Fund	0	0	27	0
Total	10,348	11,120	11,668	12,278

Figure 5-7 depicts Marine Corps TOA trends since FY91 in constant dollar terms. This data reveals the total impact of reduced spending over time. The Marine Corps, in constant dollar terms, has decreased by 4.6 percent since FY91.

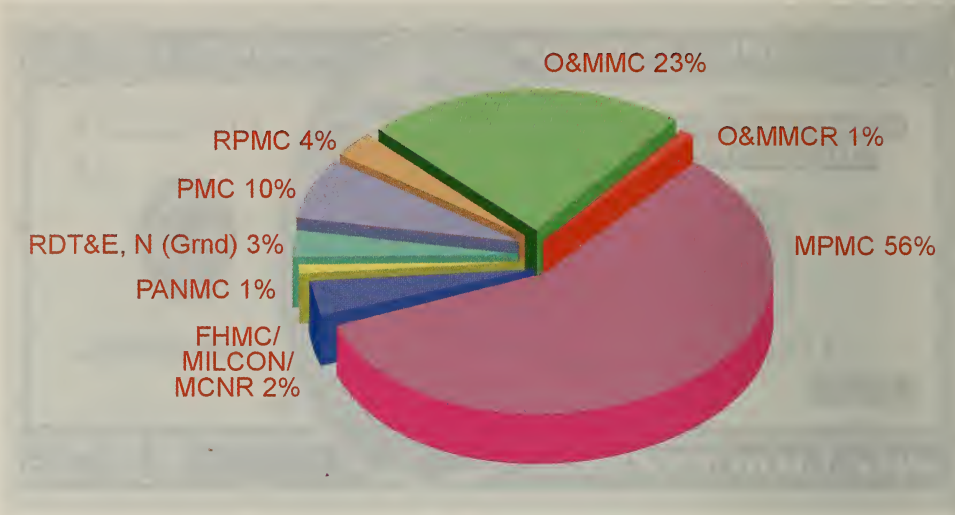
**FIGURE 5-7: TOTAL OBLIGATIONAL AUTHORITY (FY00
CONSTANT DOLLARS)**



USMC FY00 TOA by Appropriation

The largest elements within the Marine Corps budget request are the manpower and the operation and maintenance accounts. These accounts support our military personnel, readiness, and operations programs. Figure 5-8 shows that, combined (active and reserve), these appropriations make up 84 percent of the Marine Corps FY00 Budget. Marine Corps procurement and research and development appropriations account for about 14 percent of the budget request. These accounts support key modernization programs which are critical to the Marine Corps success on future battlefields. The remaining 2 percent represents investment in infrastructure in the form of family housing and new construction for active and reserve forces.

FIGURE 5-8: USMC FY00 TOA BY APPROPRIATION

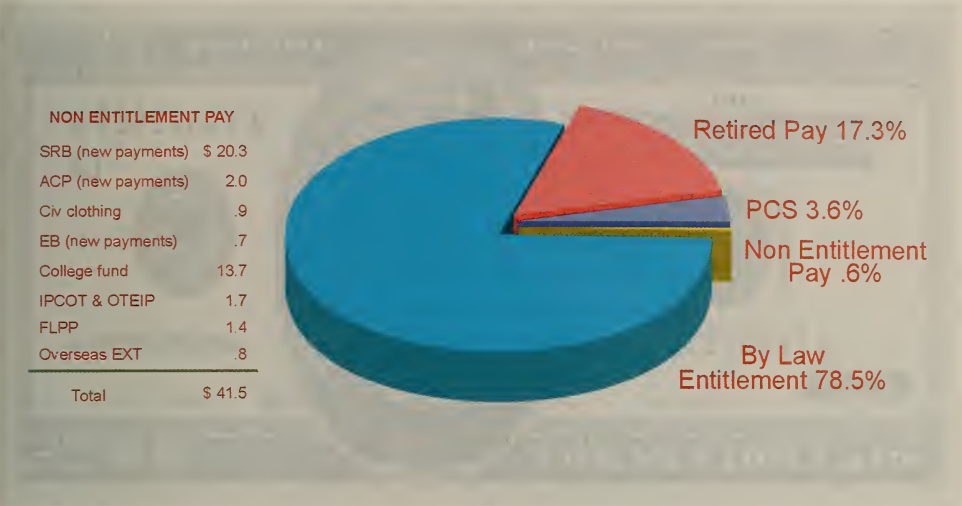


■ *MILITARY PERSONNEL AND RESERVE PERSONNEL MARINE CORPS (MPMC/RPMC) BUDGET*

The Marine Corps active and reserve manpower accounts comprise sixty percent of the Marine Corps TOA. The FY00 budget proposes three significant changes to improve retention and provide a more equitable compensation package to military personnel. This budget finances pay raises calculated on the basis of full ECI; pay table reform which targets the mid-grade enlisted and officer personnel whose education and experience are most critical to military readiness; and restores the 50% retirement benefit for all service members retiring at 20 years.

The vast majority of the MPMC account funds by-law entitlements as shown in Figure 5-9.

FIGURE 5-9: MILITARY PERSONNEL FY00 BUDGET (FYDP \$M)



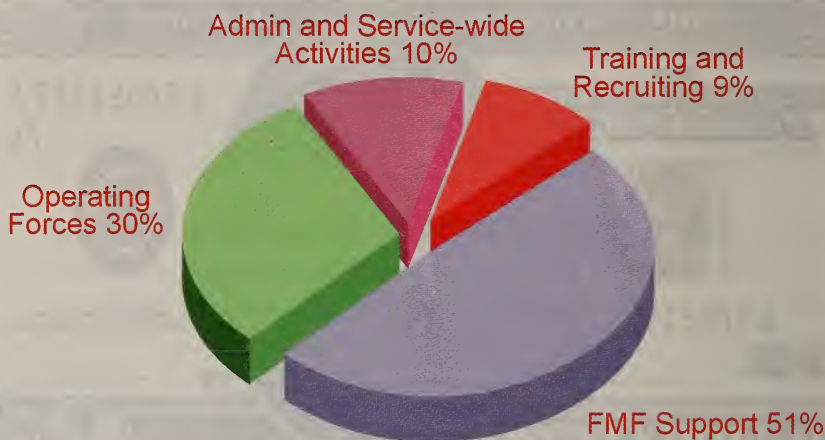
The nondiscretionary portions of this appropriation represent compensation for our Marines as authorized by Congress. Small discretionary programs (Selective Reenlistment Bonus, Aviation Continuation Pay, Enlistment Bonus, and College Fund) are modest investments which reap large dividends. These programs help the Marine Corps shape its force properly through recruiting and retention and save the taxpayer money through reduced training costs.

The Reserve Personnel Marine Corps appropriation funds the same type of programs for our reserve component. In the past year, the Reserve Force Structure Review Group realigned the mix of reservists to create a more effective component. We remain committed to Reserve contributory support to enhance and complement the active force while maintaining unit readiness to meet crisis requirements.

❑ OPERATION AND MAINTENANCE, MARINE CORPS (O&MMC AND O&MMCR) BUDGET

The O&MMC budget request of \$2.8 billion represents, in real terms, a decrease of 3.6 percent from FY99 after discounting the transfer of resources to fund the Marine Corps share of the operating costs of the Defense Commissary Agency, Pentagon rents, and quality of life defense projects.

FIGURE 5-10: OPERATION AND MAINTENANCE BY MAJOR ACTIVITY



The O&MMC account is a crucial component of our overall readiness. This budget will support a FMF of three active divisions and associated support and combat service support elements, station and Marine-unique support for three aircraft wings and the operation and maintenance of training bases, logistics functions, and administrative activities.

Despite lower spending levels, the budget includes support, at minimally acceptable levels, for the operating forces of the Marine Corps, to include continuation of the fielding of improved equipment for the individual Marine. The budget also finances the continuation of investment in outsourcing and privatization studies reflecting savings in FY00 associated with operational efficiencies, and contains funding to maintain an acceptable level of depot maintenance unfunded backlog. This budget fully finances requirements for recruit training, initial skill training and follow-on training courses, and continues support of recruit

accession goals and the expanded recruit advertising campaign. This budget also continues our effort to reduce the training pipeline and increase manpower strength in the FMF through the Distributed Learning program.

A reprogramming of \$34.9 million from the MPMC appropriation to fund critical readiness issues in the O&MMC appropriation is planned during FY99. In addition to the reprogramming, major changes from FY99 include a decrease of \$80 million dollars in MRP, to reflect the transfer of funds to the QOL defense appropriation, and an increase of \$98 million dollars in FY00 to reflect the transfer back of DECA and Pentagon renovation funds.

A major portion of FMF support covers the areas of base operations and maintenance of real property. While essential levels of base operations consistent with prior years' experience have been financed, fiscal constraints have precluded necessary investment in maintaining plant property at Marine Corps bases and stations. While increases provided in this budget will arrest the backlog of maintenance and repair at approximately \$700 million, this level still far exceeds our goal to reduce backlog to \$100 million by FY10.

Our budget continues to support the Maritime Prepositioning Program through replenishment, modernization, and replacement of equipment during the MPS maintenance cycle. Also funded under this appropriation is the transportation of materiel to and from Marine Corps logistics bases.

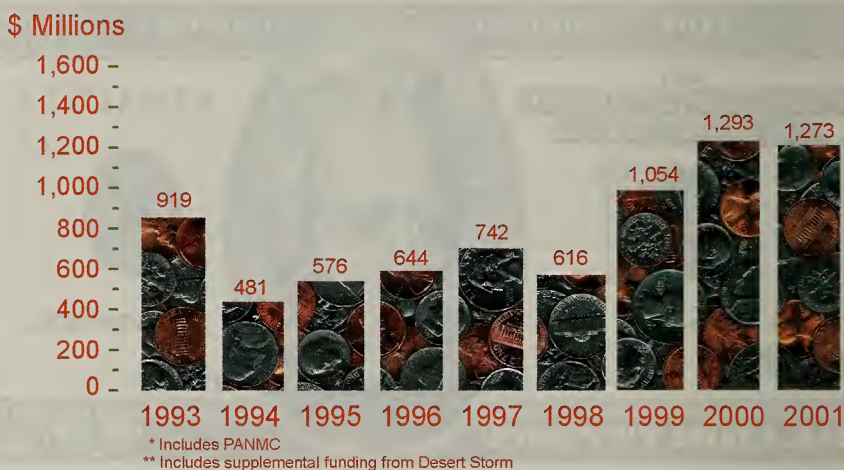
The budget also supports the full stand-up of Marine Corps Air Station, Miramar, while financing caretaker costs at Marine Corps Air Stations El Toro and Tustin until these bases are disposed of. The Department's funding of Marine Corps operations provides highly ready forces to respond to the full spectrum of crises by providing appropriately sized, positioned, and mobile forces for joint or independent operations.

The O&MMCR account supports a Marine Reserve Force that includes the Fourth Marine Division, the Fourth Marine Aircraft Wing, the Fourth Force Service Support Group, and the Marine Corps Reserve Support Command. The budget reflects Reserve Force Structure Review Group realignments, providing support costs for Reserve end-strength. The budget also continues increased funding for environmental programs and provision of initial issue equipment.

PROCUREMENT, MARINE CORPS (PMC), PROCUREMENT OF AMMUNITION, NAVY AND MARINE CORPS (PANMC), AND RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, NAVY (RDT&E,N)

Marine Corps equipment modernization and research and development accounts have been underfunded for more than seven years. Figure 5-11 shows that since 1993, funding for procurement has fallen short of the steady state level of \$1.2 billion needed annually to sustain the Corps. This extended period of underfunding has driven the recovery rate to \$1.8 billion per year. The increases provided in this budget reverse the downward trend in this critical area. As shown on the chart below, we will achieve the steady state level in FY00 and the recover level in FY05.

FIGURE 5-11: PROCUREMENT MARINE CORPS DOLLARS* (FY00 CONSTANT DOLLARS)



The PMC & PANMC budget request of \$1.3 billion represents, in real terms, an increase of 22 percent over FY99. Figure 5-12 depicts how the PMC appropriation is allocated to budget activities in the FY00 Budget.

FIGURE 5-12: MARINE CORPS PROCUREMENT (FY00) BY BUDGET ACTIVITY (FYOP \$M)

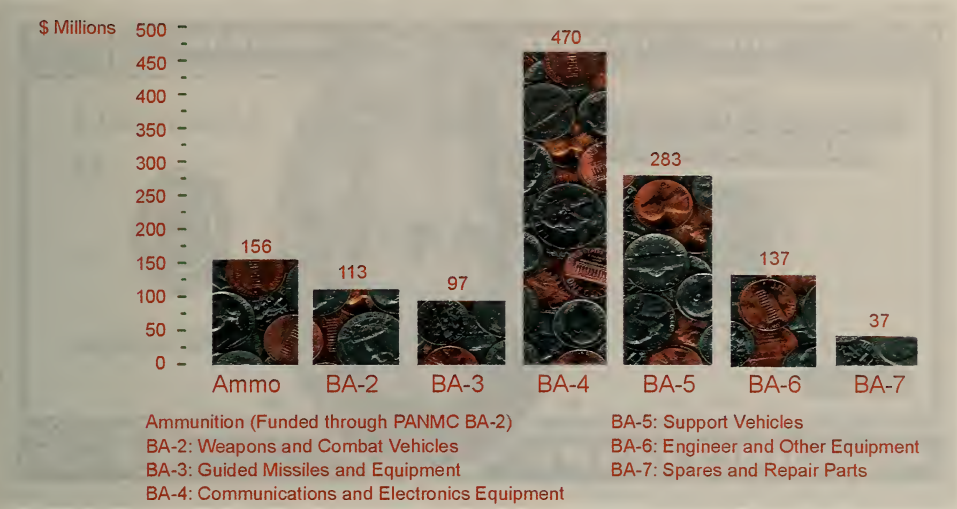


Figure 5-13: Represents R&D to support ground equipment.

FIGURE 5-13: MARINE CORPS RDT&E,N TO SUPPORT GROUND EQUIPMENT (FYOP \$M)



Marine Corps Ground Equipment

The FY00 budget continues to focus on the development and procurement of technologies and systems that support making Marines and winning battles for our nation.

FY00 continues an upward trend in the pace of modernization that continues through the FDYP. Several major replacement, remanufacture and modernization programs are included in this budget, such as the High Mobility, Multipurpose Wheeled Vehicle (HMMWVA2), the Medium Tactical Vehicle Replacement (MTVR) and the Assault

Amphibious Vehicle (AAV) RAM Rebuild to Standard (RS). The HMMWVA2 program will replace our current aging inventory of first generation HMMWVs. Further, the low-rate initial procurement of 240 MTVRs under multi-year procurement commenced in FY99. This program will remanufacture 5-ton trucks over the next five years and provides for the economical replacement of the current medium truck fleet with enhanced off-road capabilities. The FY00 Procurement Marine Corps Budget funds the continuation of the AAV7A1 RAM/RS program to provide a cost-effective method to sufficiently bridge our operational requirements until the AAVV replaces the AAV7A1. This program provides for the return of mobility performance and allows affordable achievement of combat readiness.

This budget supports enhanced firepower with the continued multi-year procurement of the Javelin Missile, a medium range, man-portable, anti-tank weapon to replace the Dragon system. Development, prototyping and engineering efforts also continue for the Lightweight (LW) 155mm Howitzer, a replacement for the aging, operationally deficient M198 howitzer. The LW155 will provide artillery fire-support with increased mobility, survivability, deployability and sustainability in an expeditionary environment. LW155 procurement funding begins in FY01 for long lead and support materials.

Funding for the procurement of ammunition is reflected in the Procurement of Ammunition, Navy and Marine Corps appropriation. The FY00 budget continues the effort to reach the Marine Corps goal of satisfying the combat requirement through the FYDP while meeting the annual ammunition training requirements.

A significant portion of the Marine Corps FY00 ground Research and Development budget is dedicated to the AAVV, which will replace the thirty year old Assault Amphibious Vehicle. Also continuing in FY00 is the development of the Short-Range Anti-Armor Weapon (Predator), a lightweight, disposable, main battle tank killer. The FY00 R&D budget continues to finance the Marine Corps led experimentation with future tactics, concepts and innovations involving both Marine and Navy forces. The Marine Corps Warfighting Laboratory is the centerpiece for operational reform in the Corps, investigating new and potential technologies and their impact on how the Marine Corps organizes, equips and trains to fight in the future. Additionally, as the DOD Executive Agent for Non-lethal Weapons (NLW), the USMC budget continues to finance NLW research and development. In FY00, increased efforts have been budgeted in exploring acoustics as an anti-personnel NLW system with an overall objective of producing a non-lethal tunable, incapacitating high-powered acoustic weapon system.

Military Construction (MCON/MCNR)

Our Military Construction (MilCon) appropriation provides funding for the planning, design, construction, alteration, and improvement of Marine facilities. While our MILCON budget remains underfunded in FY00 and FY01, our FY02 funding level is sufficient to begin to achieve our goal of replacing the physical plant every 100 years. Our main efforts focus on the most immediate needs to ensure readiness, to meet safety and operational needs, and to maintain our commitment to eliminate inadequate bachelor enlisted quarters. The budget places a high priority on readiness as we replace or modernize armories, aircraft taxiways, testing facilities, aircraft hangars and other vital infrastructure needs that contribute to the readiness of our Corps. We demonstrate an equal commitment to Quality of Life programs as we balance our Military Construction program with physical fitness centers, bachelor enlisted quarters, family service centers, and child development centers.

Family Housing (FAMHSG)

Our Family Housing appropriation finances the construction, improvements, operations (furniture, utilities, and management services), leasing, and maintenance of family housing. Our current budget includes several new construction and improvement projects to improve the Quality of Life for our families residing in on-base facilities. Additionally, we are aggressively pursuing Public-Private Ventures (PPV) to eliminate our deficit of inadequate family housing units. PPV projects focus on privatizing the replacement, renovation, maintenance, and operation of existing government housing. The FY00 budget includes several PPV projects at varying stages of completion. However, current and projected funding levels remain inadequate.

Summary

On balance, this budget and the accompanying FYDP represent a critical first step toward recovery from years of underfunding. Near-term readiness remains financed: military personnel and essential operating forces support are fully funded; procurement of ground equipment increases throughout the FYDP, reaching the recovery rate in the outyears; and our military construction goal is attained within the FYDP. This progress will only be achieved if, in fact, FYDP funding levels are realized. We remain concerned about the pace of modernization, particularly for major aviation platforms, and investment in infrastructure in terms of maintenance of real property and family housing.

Appendix A

How the Marines are Organized

Marines are organized as a “*force-in-readiness*” to support national needs. They are divided into four broad categories:

- ☐ Headquarters Marine Corps ☐ Operating Forces
- ☐ Reserves ☐ Supporting Establishment

Headquarters Marine Corps

Headquarters, U.S. Marine Corps consists of the Commandant of the Marine Corps and those staff agencies that advise and assist the Commandant in discharging those responsibilities prescribed by law and higher authority. The Commandant of the Marine Corps is directly responsible to the Secretary of the Navy for the administration, discipline, internal organization, training, requirements, efficiency, and readiness of the Marine Corps; the operation of the Marine Corps materiel support system; and the total performance of the Marine Corps.

Operating Forces

Operating forces, considered the heart of the Marine Corps, constitute the forward presence, crisis response, and fighting power available to the combatant commanders. Major elements include the Marine Forces Atlantic, Marine Forces Pacific, Marine Corps Security Forces, and the Marine Security Guard Battalion with its detachments at embassies and consulates around the globe. About 64 percent of all active duty Marines are assigned to these operating forces.

The “*Forces for Unified Commands*” Memorandum assigns Marine Corps operating forces to each of the combatant commands. Although there are five Marine Corps components, there are only two Marine Corps component commands. The Marine Corps has established two combatant command level service component commands: Marine Corps Forces Atlantic and Marine Corps Forces Pacific. The II Marine Expeditionary Force is provided by Commander, Marine Corps Forces Atlantic to the Commander-in-Chief, U.S. Atlantic Command and the I and III Marine Expeditionary Forces are provided by Commander, Marine Corps Forces Pacific to the Commander-in-Chief, U.S. Pacific Command. This assignment reflects the peacetime disposition of Marine Corps Forces (MARFORs). Marine expeditionary forces are apportioned

to the remaining geographic combatant commands for contingency planning and are provided to the combatant commands when directed by the Secretary of Defense.

The Commander, Marine Corps Forces Atlantic is assigned to the Commander-in-Chief, U.S. Atlantic Command and the Commander, Marine Corps Forces Pacific is assigned to the Commander-in-Chief, U.S. Pacific Command. In order to provide three star general officer representation to the remaining three geographic combatant commands, Commander, Marine Corps Forces Atlantic is the Marine Corps Component Commander to both Commander-in-Chief, U.S. European Command and Commander-in-Chief, U.S. Southern Command. The Commander, Marine Corps Forces Pacific is designated as the Marine Corps Component Commander to the Commander-in-Chief, U.S. Central Command.

The Marine Corps Security Forces protect key Naval installations and facilities worldwide. Although not assigned to combatant commands, they are part of the operating forces of the Marine Corps. These Security Forces include Marine Barracks and Marine Security Forces Companies in the continental United States and abroad. Marine Corps Security Forces personnel operationally report to the Chief of Naval Operations. The Marine Security Guard Battalion provides forces to the Department of State for embassy security. Marine Security Guard personnel operationally report to the Secretary of State.

Marine Air Ground Task Force (MAGTF)

The MAGTF (pronounced “*mag-taff*”) is the Marine Corps principle organization for the conduct of all missions across the range of military operations. The MAGTF provides a combatant commander-in-chief or other operational commanders with a versatile expeditionary force for responding to a broad range of crisis and conflict situations. MAGTFs are balanced, combined arms forces with organic command, ground, aviation, and sustainment elements.

MAGTF Capabilities

MAGTF capabilities are not built merely to wait for the next amphibious assault or regional war; they are deployed every day. Through operational experience, developed procedures, and honed training routines, the Marine Corps stands ready to respond. Our organization has evolved to handle uncertain world situations and has repeatedly

demonstrated its worth. Embarked aboard amphibious ships, forward-deployed MAGTFs provide decision makers with the capabilities to:

- ☐ *Move forces into crisis areas without revealing their exact destinations or intentions;*
- ☐ *Provide continuous presence in international waters;*
- ☐ *Provide immediate national response in support of humanitarian and natural disaster relief operations;*
- ☐ *Provide credible but nonprovocative combat power over the horizon of a potential adversary, for rapid employment as the initial response to a crisis;*
- ☐ *Support diplomatic processes for peaceful crisis resolution before employing immediate response combat forces;*
- ☐ *Project measured degrees of combat power ashore, at night, and under adverse weather conditions, if required;*
- ☐ *Introduce additional forces sequentially into a theater of operations;*
- ☐ *Operate independent of established airfields, basing agreements, and overflight rights;*
- ☐ *Conduct combat operations ashore using inherent combat service support brought into the theater of operations;*
- ☐ *Enable the introduction of follow-on MAGTF or Joint and/or Combined forces by securing staging areas ashore;*
- ☐ *Operate in rural and urban environments or hostile nuclear, biological, and chemical situations;*
- ☐ *Withdraw rapidly at the conclusion of operations or remain to help restore stability to the affected areas; and*
- ☐ *Plan and commence execution of a mission within 6 to 48 hours of receiving a warning order.*

MAGTF Composition

The Marine Corps task organizes for combat consistent with its statutory tasking to “... *provide forces of combined arms, including aviation...*” by forming forces into integrated, combined arms MAGTFs employed to accomplish assigned missions. MAGTFs are specifically tailored for rapid deployment by air and/or sea. MAGTFs are comprised of four elements:

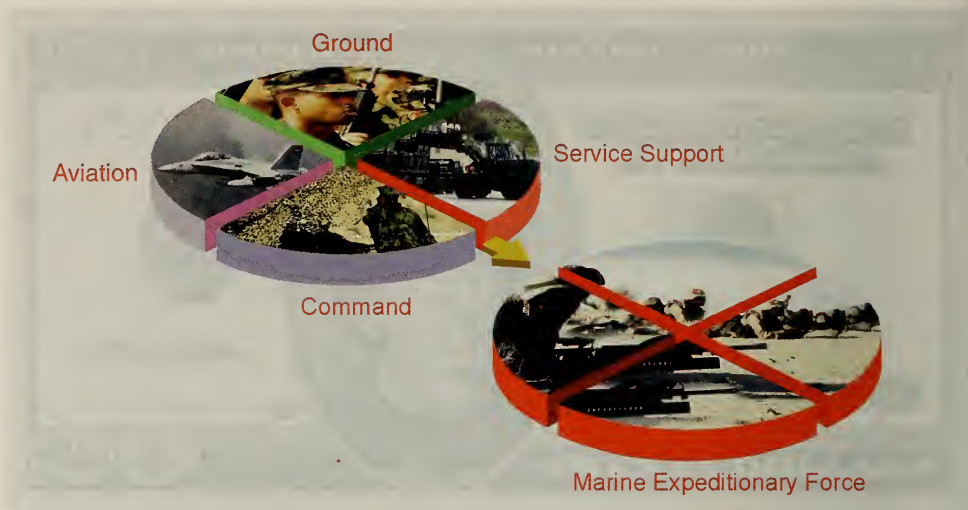
❑ ***Command Element (CE)***. The CE contains the MAGTF headquarters and other units that provide intelligence, communications, and administrative support in general support of the MAGTF. As with all other elements of the MAGTF, it is task organized to provide the command, control, communications, computers, intelligence, and interoperability (C4I2) necessary for effective planning and execution of all operations.

❑ ***Ground Combat Element (GCE)***. The GCE is task organized to conduct ground operations to support the MAGTF mission. It may include infantry, artillery, reconnaissance, armor, engineer, and other forces as needed. The GCE can vary in size and composition from a light, air transportable unit such as a reinforced infantry battalion to one that is relatively heavy and mechanized, which may include one or more Marine, Army, or Allied divisions.

❑ ***Aviation Combat Element (ACE)***. The ACE conducts offensive and defensive air operations and is task organized to perform those functions of Marine aviation required to support the MAGTF mission. It is formed around an aviation headquarters with appropriate air control agencies, combat, combat support, and combat service support units. The ACE can vary in size and composition from an aviation detachment of specifically required aircraft to one or more Marine aircraft wings (MAWs).

❑ ***Combat Service Support Element (CSSE)***. The CSSE is task organized to provide the full range of combat service support functions and capabilities necessary to support the continued readiness and sustainability of the MAGTF as a whole. It is formed around a combat service support headquarters and may vary in size and composition from a support detachment to one or more force service support groups (FSSGs).

Figure A-1: Marine Air-Ground Task Force



Types of Marine Air Ground Task Forces

Three types of MAGTFs can be task organized as follows: the Marine Expeditionary Force, the Marine Expeditionary Unit (Special Operations Capable), and the Special Purpose Marine Air Ground Task Force.

❑ ***Marine Expeditionary Force (MEF).*** The MEF is the principal Marine Corps warfighting organization, particularly for a larger crisis or contingency, and is normally commanded by a Lieutenant General. A MEF can range in size from less than one to multiple divisions and aircraft wings, together with one or more FSSGs.

With 60 days of accompanying supplies, MEFs are capable of both amphibious operations and sustained operations ashore in any geographic environment. With appropriate augmentation, the MEF command element is capable of performing as a Joint Task Force (JTF) Headquarters.

MEFs are the primary “*standing MAGTFs*” (i.e., they exist in peacetime as well as wartime). Currently the Marine Corps is organized with three standing MEFs, each with a Marine division (MarDiv), MAW, and FSSG. The I Marine Expeditionary Force (I MEF) is located at bases in California and Arizona. The II Marine Expeditionary Force (II MEF) is located at bases in North Carolina and South Carolina. The III Marine

Expeditionary Force (III MEF) is forward-based in Okinawa and Mainland Japan. Marine component headquarters, COMMARFORLANT or COMMARFORPAC, may form smaller MAGTFs from these MEFs. The Marine Corps reservoir of combat capabilities -- the divisions, wings, and force service support groups -- are assigned to these standing MEFs. A MEF will normally deploy in echelon and will designate its lead element as the MEF (Forward).

Figure A-2: World Map Showing Location of MEFs, MPSs, & MARFORs



■ Marine Expeditionary Unit (Special Operations Capable)

(MEU(SOC)). Forward deployed MEU (SOCs) embarked aboard Amphibious Ready Group (ARG) shipping operate continuously in the areas of responsibility of numerous Unified Commanders. These units provide the National Command Authorities and Unified Commanders an effective means of dealing with the uncertainties of future threats by providing forward deployed units which offer unique opportunities for a variety of quick reaction, sea-based, crisis response options in either a conventional amphibious/expeditionary role or in the execution of maritime special operations. The forward deployed MEU(SOC), forged and tested in real-world contingencies, remains the benchmark forward operating Marine force. The MEU is commanded by a colonel and deploys with 15 days of accompanying supplies.

Prior to deployment, the MEU undergoes an intensive 6 month training program focusing on its conventional and selected maritime special operations missions. The training culminates with a thorough evaluation and certification as "*Special Operations Capable (SOC)*".

❑ ***Special Purpose MAGTF (SPMAGTF)***. A SPMAGTF is task organized to accomplish a specific mission, operation, or regionally focused exercise. As such, SPMAGTFs can be organized, trained, and equipped to conduct a wide variety of expeditionary operations ranging from crisis response to training exercises and peacetime missions. They are designated as SPMAGTF with a mission, location, or exercise name: e.g., "*SPMAGTF (X)*," "*SPMAGTF Somalia*," "*SPMAGTF UNITAS*", or "*SPMAGTF Dade County*." Their duties cover the spectrum from non-combatant evacuation to disaster relief and humanitarian missions.

MAGTF Sustainability

A fundamental characteristic of a MAGTF is its ability to operate for extended periods as an expeditionary force, relying on internal resources for sustainment. All MAGTFs have inherent sustainability to be self-sufficient for planned periods. Larger MAGTFs have a deeper, broader, and more capable organic support capability. MAGTFs deploy with a portion of their accompanying supplies sufficient for a specific period of time:

- ❑ MEF - 60 days
- ❑ MEU - 15 days
- ❑ SPMAGTF - As the situation requires.

MAGTFs can augment their organic sustainability by using external support from Navy organizations, wartime host nation support (WHNS) agreements, interservice support agreements (ISSAs), and in theater cross service support.

Maritime Prepositioning Forces (MPF)

MPFs provide an added dimension in mobility, readiness, and global responsiveness. The MPF program involves 13 ships organized in three squadrons. These squadrons are strategically positioned in the Atlantic, Indian, and Pacific Oceans. The MPF program reduces MAGTF response time from weeks to days by prepositioning the bulk of equipment and 30 days of supplies for a 17,300 MARFOR aboard specially designed ships. Personnel and selected equipment can be airlifted quickly, using roughly 250 airlift sorties, to an objective area to join with required equipment at a secure site.

As graphically demonstrated in Operation Desert Shield, MPFs are integral to the rapid deployment of credible combat power. MPF program flexibility has been increased through selective and innovative loading plans and development of enhanced deployment options.

Unique Unified Commander Support

A Combatant Commander or subordinate Joint Force Commander may also require MARFORs that do not possess all elements of a MAGTF; thus they are not given a MAGTF designation. Examples are installation security forces, engineer and medical support teams for humanitarian operations, deployments for training, law enforcement operations, and mobile training teams. In these cases, forces will be designated by the name of the senior headquarters having operational control; e.g., 1st Combat Engineer Battalion (Rein), 1st MarDiv.

Marine Expeditionary Units (Special Operations Capable)

COMMARFORLANT and COMMARFORPAC maintain forward-deployed MEU(SOC)s in the Mediterranean, Persian Gulf, and Pacific regions. In addition to conventional capabilities, the MEU(SOC) is augmented with selected attachments to provide enhanced capabilities. These special capabilities include:

- ☐ Close Quarters Battle
- ☐ Specialized Demolition Operations
- ☐ Clandestine Reconnaissance and Surveillance
- ☐ Maritime Interdiction Operations
- ☐ Direct Action
- ☐ Gas and Oil Platform Operations
- ☐ Tactical Recovery of Aircraft and/or Personnel
- ☐ In-Extremis Hostage Recovery
- ☐ Clandestine Recovery Operations

☐ ***Air Contingency Forces*** . Both COMMARFOR PAC and COMMARFORLANT maintain Air Contingency MAGTFs (ACMs) in a continuous state of readiness. ACMs are air deployable forces available to the Unified Commanders with lead elements ready to deploy within 18 hours of notification. The ACMs provide great versatility in that they can be used as part of the fly-in echelon of a MPF, as reinforcement for an amphibious force, or as the lead element of a MEF.

The ACM will be task organized to meet the mission, the threat, and airlift availability. The size of the GCE can range from a reinforced rifle company plus a battalion headquarters element, to a regimental size force consisting of a regimental headquarters, two infantry battalions, a two battery artillery battalion, a two platoon reconnaissance company, a two platoon engineer company, and appropriate aviation and combat service support elements.

❑ **Norway Prepositioning Program.** Similar in concept to the MPF but land based, this program currently stores supplies and combat equipment at secure locations in Norway for an airlifted force. Forward positioning of equipment saves both reaction time and tremendous additional airlift assets.

❑ **Marine Corps Security Forces (MCSF).** About 3,200 Marines support or augment Navy security forces around vital naval assets worldwide. These forces are assigned to the Chief of Naval Operations and serve as operating forces of the Marine Corps. These forces include Marine Barracks, Marine Corps Security Force Companies, two Fleet Antiterrorism Security Team (FAST) Companies which will deploy three FAST platoons in support of COMUSNAVCENT, CINCPACFLT and COMUSNAVEUR, and a small number of cadre assigned to Navy regions to assist in training of Navy security personnel. The Marine Detachments previously assigned to aircraft carriers were disestablished in early 1998 as part as a coordinated effort to improve Naval security and force protection worldwide.

❑ **Marine Security Guard Battalion.** The Marine Corps also provides forces to the Department of State for embassy security. Organized into the Marine Security Guard Battalion, these Marines are currently assigned to 121 embassies and consulates in 112 different countries. While not every American embassy or consulate has a Marine Security Guard detachment, those that do are protected by a security element that is both practical and impressive.

Reserves

In addition to active forces, force expansion is made possible by the activation of the Marine Corps Reserve, which like the active forces, consists of a combined arms force with balanced ground, aviation, and combat service support units. Organized under the Commander, Marine Forces Reserve (COMMARFORRES), units of this command are located at 190 training centers in 47 states, Puerto Rico, and the District of Columbia.

Over the past several years, the Reserve Component has been closely integrated with the Active Component in our Total Force concept. The Reserves provide individuals and specific units to augment and reinforce active capabilities.

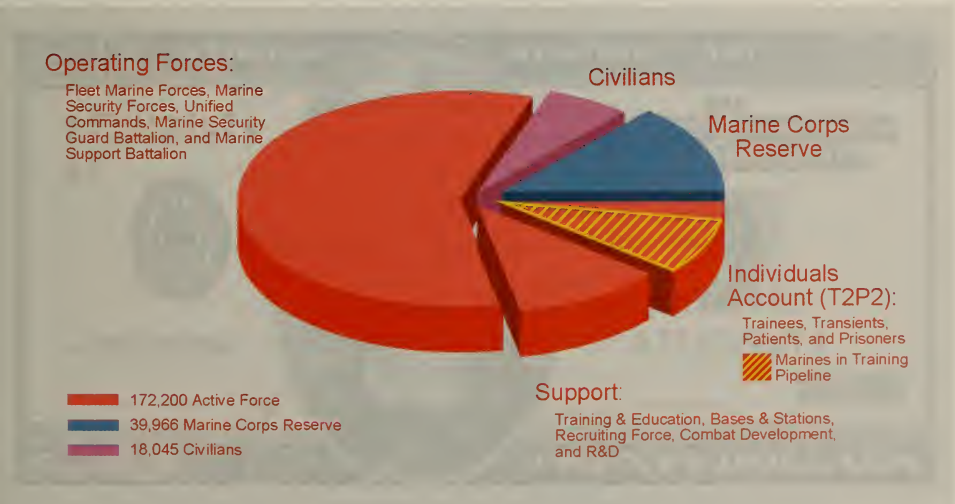
Supporting Establishment

The Marine Corps Supporting Establishment consists of those personnel, bases, and activities that support the Marine Corps operating forces. This infrastructure consists primarily of 17 major bases and stations in the United States and Japan and all personnel, equipment, and facilities required to operate them. This equates to approximately 32,000 Marines. The Supporting Establishment also includes the Marine Corps Recruiting Command, the Marine Corps Combat Development Command, and Marine Corps Systems Command, as well as all the training activities and formal schools. Additionally, the Supporting Establishment includes those civilian activities and agencies that provide support to the MARFORs.

Marine Corps Total Force

Figure A-3 depicts the Marine Corps Total Force. There is a direct relationship between the size of the Marine Corps and the contribution made to our national defense. Large scale deployments, operations, and training exercises with Allies are part of our training and presence requirements in peacetime. About 23 percent of our operating forces are forward deployed during peacetime, which predicates a high deployment tempo and a corresponding CONUS rotation base. As the U.S. retains a desire to maintain stability in areas where we have significant interests, the requirement for forward deployed forces will continue.

FIGURE A-3: Marine Corps Total Force



Appendix B

Abbreviations and Acronyms

This appendix provides a list of abbreviations and acronyms commonly used in Marine Corps correspondence, publications, and daily dialog, and is provided for reference purposes. Not all listed acronyms are included in this publication.

AAAV	Advanced Amphibious Assault Vehicle
AAP	Abbreviated Acquisition Program
AAV	Assault Amphibious Vehicle
AAWS-H	Anti-Armor Weapon System-Heavy
AAWS-M	Advanced Antitank Weapon System-Medium
ACADA	Automatic Chemical Agent Detector Alarm
ACAT	Acquisition Category
ACE	Aviation Combat Element
ACM	Air Contingency MAGTF
ACP	Aviation Continuation Pay
ACS	Advanced Countermine System
ACTD	Advanced Concept Technology Demonstration
ADCP	Air Defense Communications Platform
ADFC	Advanced Digital Fire Control System
ADM	Acquisition Decision Memorandum
ADS	Advanced Distributed Simulation
AE	Assault Echelon
AFATDS	Advanced Field Artillery Tactical Data System
AFOE	Assault Follow-On Echelon
AFV	Armored Fighting Vehicle
AGLEP	Advanced Ground Laser Eye Protection
AIT	Automated Identification Technology
ALC	Area Learning Center
ALICE	All-Purpose Lightweight Individual Carrying Equipment
AMC	Air Mobility Command
AMCM	Airborne Mine Countermeasures
ANBACIS	Automated Nuclear, Biological and Chemical Information System
ANGLICO	Air/Naval Gunfire Liaison Company
AO	Acquisition Objective
AOA	Analysis of Alternatives
AOR	Area of Responsibility

APN	Aircraft Procurement, Navy
APOBS	Antipersonnel Obstacle Breaching System
APS	Active Protection System
ARDEC	Army Research, Development, and Engineering Center
ARG	Amphibious Ready Group
ARPA	Advanced Research Projects Agency
AS	Analysis Substation
ATACC	Advanced Tactical Air Command Central
ATACMS	Army Tactical Missile System
ATARS	Advanced Tactical Airborne Reconnaissance System
ATC	Air Traffic Control
ATD	Advanced Technology Development
ATF	Amphibious Task Force
ATLASS	Asset Tracking Logistics and Supply System
ATM	Asynchronous Transfer Mode
ATO	Air Tasking Order
AUTODIN	Automated Digital Network
AVDTV	Armored Vehicle Driver's Thermal Viewer
AWE	Advanced Warfighting Experiment
BA	Budget Activity/Authority
BFV	Bradley Fighting Vehicle
BMAR	Backlog of Maintenance and Repair
BOS	Base Operating Support
BRAC	Base Realignment and Closure
BST	Basic Skills Trainer
BTI	Base Telecommunications Infrastructure
BU	Block Upgrade
BUR	Bottom-Up Review
C2	Command and Control
C3I	Command, Control, Communications, and Intelligence
C4I	Command, Control, Communications, Computers, and Intelligence
CAC2S	Common Aviation Command and Control System
CAEMS	Computer-Aided Embarkation Management System
CAM	Chemical Agent Monitor
CASTFOREM	Combined Arms and Support Task Force Evaluation Model

CATF	Commander, Amphibious Task Force
CAX	Combined Arms Exercise
CBIRF	Chemical/Biological Incident Response Force
CBRS	Concept Based Requirements System
CBV	Combat Breacher Vehicle
CCP	Consolidated Cryptological Program
CCS	COMINT Collection Subsystem
CCS-OS	CCS Outstation
CD	Counterdrug
CDR	Critical Design Review
CDS	Combat Development System
CE	Command Element
CEC	Cooperative Engagement Capability
CECM	Communications Electronic Countermeasures
CENTCOM	Central Command
CFR	Crash, Fire, and Rescue
CG	Commanding General
CIA	Central Intelligence Agency
CIARDS	CIA Retirement and Disability System
CIC	Combat Integration Capability
CIGS	Common Imagery Ground Surface System
CINC	Commander-in-Chief
CINCLANT	Commander-in-Chief Atlantic
CINCPAC	Commander-in-Chief Pacific
CJTF	Commander, Joint Task Force
CLASS	Closed Loop Artillery Simulation System
CMC	Commandant of the Marine Corps
CMOS	Cargo Movement Operations System
CMV	Combat Mobility Vehicle
CNA	Center for Naval Analysis
COE	Common Operating Environment
COE	Concept of Employment
COMINT	Communications Intelligence
COMSEC	Communications Security
COMUSNAVCENT	Commander, U.S. Navy Central
CONUS	Continental United States
CORM	Commission on Roles and Missions of the Armed Forces
COTS	Commercial off-the-Shelf
CPE	Collective Protection Environment
CPG	Commandant's Planning Guidance
CPU	Central Processing Unit
CPX	Command Post Exercise

CQB	Close Quarters Battle
CR	Combat Requirement
CRDEC	Chemical Research, Development & Engineering Center
CRS	Canteen Refilling System
CS	Communication Subsystem
CSAR	Combat Search and Rescue
CSS	Combat Service Support
CSSE	Combat Service Support Element
CTAPS	Contingency Theater Automated Planning System
CTI	Central Tire Inflation
CTT	Commanders Tactical Terminal
CV	Aircraft Carrier
CVAT	Combat Vehicle Appended Trainer
CVBG	Carrier Battle Group
CWAR	Continuous Wave Acquisition Radar
DAB	Defense Acquisition Board
DACT	Digital Automated Communications Terminal
DAMA	Demand Assigned Multiple Access
DARP	Defense Airborne Reconnaissance Program
DASC	Direct Air Support Center
DAWMS	Deep Attack Weapons Mix Study
DBOF	Defense Business Operations Fund
DCP	Defense Cryptologic Program
DEPTempo	Deployment Tempo
DF	Direction Finding
DFT	Deployments for Training
DGIAP	Defense General Intelligence and Applications Program
DHS	Defense HUMINT Service
DIA	Defense Intelligence Agency
DICP	Defense Intelligence Counterdrug Program
DII	Defense Information Infrastructure
DIMAP	Defense Imagery and Mapping Program
DIS	Distributed Interactive Simulation
DISA	Defense Information Systems Agency
DISTP	Defense Special Technology Program
DITP	Defense Intelligence Tactical Program
DL	Distance Learning
DLC	Distance Learning Center
DMRD	Defense Management Review Decision
DMS	Defense Messaging System

DMSO	Defense Modeling and Simulation Office
DOA	Days of Ammunition
DoD	Department of Defense
DON	Department of the Navy
DOS	Days of Supply
DPG	Defense Planning Guidance
DPP	Defense Program Projection
DPRB	Defense Planning and Resources Board
DSCS	Defense Satellite Communications System
DSN	Defense Switched Network
DSRP	Defense Space Reconnaissance Program
DT	Developmental Test
DTC	Digital Technical Control
DTS	Defense Transportation System
EA	Electronic Attack
EAF	Expeditionary Airfield
EB	Enlistment Bonus
EDM	Engineering Development Model
EHF	Extremely High Frequency
ELINT	Electronics Intelligence
E-MAIL	Electronic Mail
EMD	Engineering and Manufacturing Development
EOB	Electronic Order of Battle
EOD	Explosives, Ordnance, and Disposal
EP	Electronic Protection
EPLRS	Enhanced Position Location Reporting System
EPUU	Enhanced PLRS User Units
ERGM	Extended Range Guided Munitions
ESP	Extended Service Program
ESS	Electronics Intelligence (ELINT) Support System
ETSS	Extended Training Service Specialist
EUL	Economic Useful Life
EW	Electronic Warfare
FAC	Forward Air Controller
FARP	Forward Arming and Refueling Point
FAST	Fleet Antiterrorism Security Team
FATS	Firearms Training Systems
FCIP	Foreign Counterintelligence Program
FDC	Fire Direction Center
FDS	Field Development System
FEX	Field Exercise

FH	Frequency Hopping
FHMC	Family Housing Marine Corps
FIE	Fly-in Echelon
FIIU	Force Imagery Interpretation Unit
FLC	Functional Learning Center
FLIR	Forward Looking Infrared
FLPP	Foreign Language Proficiency Pay
FM	Frequency Modulation
FMF	Fleet Marine Force
FO	Forward Observer
FOC	Full Operational Capability
FOF	Floating Offshore Facility
FOTT	Follow-on-to-TOW
FPLIF	Field Pack Large with Internal Frame
FSC2S	Fire Support Command and Control System
FSCC	Fire Support Coordination Center
FSED	Full Scale Engineering Development
FSSG	Force Service Support Group
FTE	Full-Time Equivalent
FTS	Full-Time Support
FY	Fiscal Year
FYDP	Future Year Defense Plan
FYEP	Five Year Experimentation Plan
GCCS	Global Command and Control System
GCE	Ground Combat Element
GCS	Ground Control Station
GDIP	General Defense Intelligence Program
GLPS	Gun Laying and Positioning System
GMF	Ground Mobile Forces
GOTS	Government off-the-Shelf
GPS	Global Positioning System
GTN	Global Transportation Network
HARM	High-Speed Antiradiation Missile
HEMTT	Heavy Expanded Mobility Tactical Truck
HAW	Heavy Antiarmor Weapon
HF	High Frequency
HLA	High Level Architecture
HMD	High Mobility Downsize
H-HMMWV	Heavy Variant High Mobility, Multipurpose Wheeled Vehicle
HMMWV	High Mobility, Multipurpose Wheeled Vehicle

HQMC	Headquarters, U.S. Marine Corps
HUD	Head-Up Display
HUMINT	Human Intelligence
HWTS	Heavy Weapons Thermal Sight
I2	Image Intensification
IAC	Intelligence Analysis Center
IAS	Intelligence Analysis System
ICAD	Individual Chemical Agent Detector
ICCE	Individual Combat Clothing and Equipment
IDASC	Improved Direct Air Support Center
IELD	Improved External Lift Device
IEWCS	Intelligence and Electronic Warfare Common Sensor
IFSAS	Initial Fire Support Automated System
IMI	Interactive Multimedia Instruction
IMINT	Imagery Intelligence
INFOSEC	Information Security
INTEL	Intelligence
IO	Information Systems
IOC	Initial Operational Capability
IOT	Initial Operational Test
IOT&E	Initial Operational Test and Evaluation
IOW	Intelligence Operations Workstation
IPCOT	In-Place Continuation of Overseas Tour
IR	Infrared
IRAM	Improved Reliability and Maintainability
IR3B	Integrated Resources and Requirements Review Board
IRR	Individual Ready Reserve
IS	Interim Standardization
ISDN	Integrated Services Digital Network
ISMT	Indoor Simulated Marksmanship Trainer
ISR	Intelligence, Surveillance and Reconnaissance
ISSA	Interservice Support Agreement
IST	Infantry Squad Trainer
IT	Information Technology
ITV	In-transit Visibility
JAC	Joint Analysis Center
JBPDS	Joint Biological Point Detection System
JCAD	Joint Chemical Agent Detector
JCS	Joint Chiefs of Staff

JDAM	Joint Direct Attack Munitions
JFACC	Joint Force Air Component Commander
JFC	Joint Forces Commander
JIC	Joint Intelligence Center
JM	JTIDS Module
JMA/SA	Joint Mission Area/Support Area
JMASS	Joint Modeling and Simulation System
JMCIS UB	Joint Maritime Command Information System Unified Build
JMIP	Joint Military Intelligence Program
JNLWD	Joint Non-Lethal Weapons Directorate
JOPEs	Joint Operation Planning and Execution System
JOTS	Joint Operational Tactical System
JROC	Joint Requirements Oversight Council
JSLIST	Joint Service Lightweight Integrated Suit Technology
JSCP	Joint Strategic Capabilities Plan
JSF	Joint Strike Fighter
JSIMS	Joint Simulation System
JSFXD	Joint Service Fixed Site Decontamination
JSIMS	Joint Simulation System
JSIPS TEG	Joint Services Imagery Processing System Tactical Exploitation Group
JSLNBCRS	Joint Service Light NBC Reconnaissance System
JSLSCAD	Joint Service Lightweight Chemical Standoff Agent Detector
JSTARS	Joint Surveillance Target Attack Radar System
JTF-HQ	Joint Task Force Headquarters
JTF	Joint Task Force
JTIDS	Joint Tactical Information Distribution System
JWARN	Joint Warning and Reporting Network
JWARS	Joint Warfare System
JWCA	Joint Warfighting Capability Assessment
JWFC	Joint Warfighting Center
JWID	Joint Warrior Interoperability Demonstrations
LAAD	Low Altitude Air Defense
LAAM	Light Anti-Aircraft Missile
LAI	Light Armored Infantry
LAN	Local Area Network
LAV	Light Armored Vehicle
LAV-AD	Light Armored Vehicle-Air Defense
LAV-FIST	LAV-Full-Crew Simulator Trainer

LCAC	Landing Craft Air Cushion
LEWDD	Lightweight Early Warning Detection Device
LHA	Amphibious Assault Ship - General Purpose
LHD	Amphibious Assault Ship - Multipurpose
LIC	Low Intensity Conflict
LLDR	Lightweight Laser Designator Rangefinder
LLI	Long Lead Item
LMCC	Logistics Movement Control Center
LMS	Lightweight Multipurpose Shelter
LNBCRS	Light Nuclear, Biological, and Chemical Reconnaissance System
LOE	Limited Objective Experiment
LOGAIS	Logistics Automated Information System
LP/OP	Listening Post/Observation Post
LPD	Amphibious Transport Dock [Ship]
LPH	Amphibious Assault Ship - Helicopter
LRC	Learning Resource Center
LRIP	Low Rate Initial Production
LRU	Line Replaceable Units
LTVR	Light Tactical Vehicle Remanufacture
LUT	Limited User Test
LVS	Logistics Vehicle System
LW155	Lightweight 155mm Howitzer
LWTC	Littoral Warfare Training Complex

M&S	Modeling and Simulation
MAA	Mission Area Analysis
MACCS	Marine Air Command and Control System
MACS	Magnetic Countermine System
MAG	Marine Aircraft Group
MAGIS	Marine Air-Ground Intelligence System
MAGTF	Marine Air-Ground Task Force
MARCENT	Marine Forces Central Command
MARCORSYSCOM	Marine Corps Systems Command
MARDIV	Marine Division
MARFORLANT	Marine Forces Atlantic
MARFORPAC	Marine Forces Pacific
MARFORRES	Marine Forces Reserve
MARINET	Marine Corps Learning Network
MASINT	Measurement and Signature Intelligence
MATCD	Marine Air Traffic Control Detachment
MAW	Marine Aircraft Wing
MAW	Medium Anti-Armor Weapon

MAWTS-1	Marine Aviation Weapons and Tactics Squadron One
Mbps	Megabits per second
MBST	Marine Battle Skills Training
MBT	Main Battle Tank
MCAGCC	Marine Corps Air-Ground Combat Center
MCARMS	Marine Corps Ammunition Requirements Management System
MCAS	Marine Corps Air Station
MCASS	Marine Common Application Support Software
MCB	Marine Corps Base
MCB	Mine Clearing Blade
MCCDC	Marine Corps Combat Development Command
MCCPIP	Marine Corps Continuous Process Improvement Program
MCDN	Marine Corps Data Network
MCEN	Marine Corps Enterprise Network
MCFSS	Marine Corps Fire Support System
MCHS	Marine Corps Common Hardware Suite
MCI	Marine Corps Institute
MCIA	Marine Corps Intelligence Activity
MCISU	Marine Corps Imagery Support Unit
MCM	Mine Countermeasures
MCMP	Marine Corps Master Plan
MCMSO	Marine Corps Modeling and Simulation Management Office
MCMWTC	Marine Corps Mountain Warfare Training Center
MCNR	Military Construction, Navy Reserve
MCON	Military Construction
MCRC	Marine Corps Recruiting Command
MCSF	Marine Corps Security Forces
MCSSC2	Marine Combat Service Support Command and Control
MCT	Marine Combat Training
MCTEEP	Marine Corps Training, Exercise Employment Plan
MCTSSA	Marine Corps Tactical System Support Activity
MCWL	Marine Corps Warfighting Laboratory
MDL	MAGTF Data Library
MDSS	MAGTF Deployment Support System
MEB	Marine Expeditionary Brigade
MEF	Marine Expeditionary Force
MEP	Marine Enhancement Program

MEU	Marine Expeditionary Unit
MEU(SOC)	Marine Expeditionary Unit (<i>Special Operations Capable</i>)
MEWSS	Mobile Electronic Warfare Support System
MHE	Materials Handling Equipment
Mhz	Megahertz
MIIDS	Military Integrated Intelligence Data System
MILCON	Military Construction, Navy
MILES	Multiple Integrated Laser Engagement System
MILSTAR	Military Strategic and Tactical Relay
MLA	Medium Lift Alternative
MLRS	Multiple Launch Rocket System
MLS	Marine Load System
MNS	Mission Needs Statement
MOA	Memorandum of Agreement
MOB	Mobile Offshore Base
MOOTW	Military Operations Other than War
MOPP	Mission Oriented Protective Posture
MORE	Military Operations in a Riverine Environment
MOS	Military Occupational Specialty
MOUT	Military Operations on Urbanized Terrain
MPF	Maritime Prepositioning Force
MPF(E)	Maritime Prepositioning Force (Enhanced)
MPIM	Multi-Purpose Individual Munition
MPMC	Military Personnel, Marine Corps
MPS	Maritime Prepositioning Ships
MPSRON	Maritime Prepositioning Ships Squadron
MRS	Mobility Requirements Study
MSBL	MAGTF Software Baseline
MSC	Major Subordinate Command
MSE	Major Subordinate Element
MSR	Main Supply Routes
MTACCS	Marine Tactical Command and Control System
MTT	Mobile Training Team
MTVR	Medium Tactical Vehicle Remanufacturing
MTWS	MAGTF Tactical Warfare Simulation
MULE	Modular Universal Laser Equipment
MWR	Morale, Welfare and Recreation
MWSG	Marine Wing Support Group
MWTS	Medium Weapon Thermal Sight
NALMEB	Norway Air-Landed MEB
NAPDD	Non-Acquisition Category Program Definition Document

NAS	Naval Air Station
NATO	North Atlantic Treaty Organization
NAVFLIR	Navigation Forward Looking Infrared
NBC	Nuclear, Biological, and Chemical
NCA	National Command Authorities
NCO	Noncommissioned Officer
NCS-E(D)	Downsized Enhanced Net Control Station
NDI	Non-developmental Item
NDP	National Defense Panel
NDSS	Network Data Storage Solution
NEF	Naval Expeditionary Force
NEO	Noncombatant Evacuation Operations
NESEA	Naval Electronics System Engineering Activity
NFIP	National Foreign Intelligence Program
NIMA	National Image and Mapping Agency
NIPRNET	Nonsecure Internet Protocol Router Network
NIS	National Input Segment
NITF	National Imagery Transmission Format
NLW	Non-Lethal Weapon
NM	Nautical Miles
NMCB	Naval Mobile Construction Battalion
NMS	National Military Strategy
NOS	Network Operating System
NSE	Naval Support Equipment
NSF	Navy Stock Fund
NSFS	Naval Surface Fire Support
NTCS-A	Naval Tactical Command System Afloat
NTS	Night Targeting System
NVG	Night Vision Goggles
O&MMC	Operation and Maintenance, Marine Corps
O&MMCR	Operation and Maintenance, Marine Corps Reserve
OCU	Operator Console Upgrade
OEO	Other Expeditionary Operations
OMFTS	Operational Maneuver from the Sea
ONR	Office of Naval Research
OPEVAL	Operational Evaluation
OPLAN	Operation Plan
OPNAV	Chief of Naval Operations
OPP	Offload Preparation Party
OPTEMPO	Operational Tempo
ORD	Operational Requirements Document
OST	Order Ship Time

OT&E	Operational Test and Evaluation
OTEIP	Overseas Tour Extension Incentive Program
OTH	Over-the-Horizon
PAA	Primary Aircraft Authorization
PANMC	Procurement of Ammunition, Navy and Marine Corps
PASGT	Personal Armor System Ground Troops
PCS	Permanent Change of Station
PDEA	Power Driven Escavating Arm
PDR	Preliminary Design Review
PDRR	Program Definition and Risk Reduction
PEO	Program Execution Officer
PERSTEMPO	Personnel Tempo
PGM	Precision Guided Munitions
PGS	Precision Gunnery System
PGTS	Precision Gunnery Training System
PIP	Product Improvement Program
PITS	Portable Infantry Target System
PLGR	Precision Lightweight Global Positioning Receiver
PLRS	Position Location Reporting System
PMC	Procurement, Marine Corps
PME	Professional Military Education
POE	Port of Embarkation
POM	Program Objective Memorandum
PPBS	Planning, Programming and Budgeting System
PRG	Program Review Group
PSD	Propulsion System Demonstrator
PWRMS	Prepositioned War Reserve Material Stocks
QDR	Quadrennial Defense Review
QOL	Quality of Life
R&D	Research and Development
R2D2	Radio Reconnaissance Distribution Device
R3B	Resources and Requirements Review Board
RAC	Riverine Assault Craft
RACWETS	Riverine Assault Craft Weapons Engagement Training System
RAM	Reliability, Availability, and Maintainability
RBE	Remain Behind Equipment
RCT	Ruggedized Handheld Computer

RDT&E	Research, Development, Test, and Evaluation
RETS	Remoted Engagement Target System
RF	Radio Frequency
RFP	Request for Proposal
RHC	Ruggedized Handheld Computer
RIS	Range Instrumentation System
RLST	Remote Landing Site Tower
RMA	Revolution in Military Affairs
RMS	Remote Mine Hunting System
RO/RO	Roll-On/Roll-Off
ROC	Required Operational Capability
ROE	Rules of Engagement
ROWPU	Reverse Osmosis Water Purification Unit
RPMC	Reserve Personnel, Marine Corps
RREP	Radio Reconnaissance Equipment Program
RRR	Residual Reserve Requirement
RRT	Radio Reconnaissance Teams
S&T	Science and Technology
SAAWC	Sector Anti-Air Warfare Coordinator
SAAWF	Sector Anti-Air Warfare Facility
SACC	Supporting Arms Coordination Center
SANG	Saudi Arabia National Guard
SAR	Search and Rescue
SATCOM	Satellite Communications
SCI	Special Compartmented Information
SCN	Shipbuilding and Conversion, Navy
SEAD	Suppression of Enemy Air Defenses
SECDEF	Secretary of Defense
SECNAV	Secretary of the Navy
SECREP	Secondary Repairables
SEMP	Supporting Establishment Master Plan
SEP	Soldier Enhancement Program
SESAMS	Special Effects Small Arms Marking System
SHADE	Shared Data Environment
SHF	Super High Frequency
SIDS	Secondary Imagery Dissemination System
SIE	Systems Integration Environment
SIGINT	Signals Intelligence
SINCGARS	Single-Channel Ground and Airborne Radio System
SIPRNET	Secret Internet Protocol Router Network
SLEP	Service Life Extension Program

SLOC	Sea Lines of Communication
SMART-T	Secure Mobile Anti-Jam Reliable Tactical Terminal
SMAW	Shoulder-Launched Multipurpose Assault Weapon
SMCM	Surface Mine Countermeasures
SMCR	Selected Marine Corps Reserve
SNCO	Staff Noncommissioned Officer
SOC	Special Operations Capable
SOI	School of Infantry
SONET	Synchronization Optical Network
SPMAGTF	Special Purpose Marine Air-Ground Task Force
SPMAGTF(X)	Special Purpose MAGTF (Experimental)
SRAW	Short Range Antitank Weapon
SRB	Selective Reenlistment Bonus
SRI	Surveillance, Reconnaissance, and Intelligence
SRIG	SRI Group
SRR	Strategic and Residual Requirement
SRU	Shop Replacement Units
STAMIS	Standard Management Information Systems
STAR-T	SHF Tri-Band Advanced Range Extension Terminal
STOM	Ship-to-Objective Maneuver
STOVL	Short Takeoff and Vertical Landing
SUBD	Small Unit Biological Detector
SWA	Southwest Asia
SWMCM	Shallow Water Mine Countermeasures
T/M/S	Type/Model/Series
TACAIR	Tactical Aviation
TACC	Tactical Air Command Center
TACO	Tactical Communications
TAOC	Tactical Air Operations Center
TAOM	Tactical Air Operations Module
T-AVB	Aviation Logistics Support Ship
TBD	To Be Determined
TBMCS	Theater Battle Management Core System
TBMD	Theater Ballistic Missile Defense
TCAC	Technical Control and Analysis Center
TCC	Tactical Communications Center
TCIM	Tactical Communications Interface Module
TCO	Tactical Combat Operations
TCS	Tactical Control Station

TDCP	Tactical Data Communications Processor
TDMA	Time Division Multiple Access
TDN	Tactical Data Network
TDS	Tactical Data System
TEG	Tactical Exploitation Group
TEMP	Test and Evaluation Master Plan
TEPOP	Training and Education Point of Presence
TERPES	Tactical Electronic Reconnaissance Processing and Evaluation System
TETS	Third Echelon Test Sets
TFDSS	Total Force Decision Support System
THS	Target Handoff Subsystem
TIM	Toxic Industrial Materials
TLAM	Tomahawk Land-Attack Missile
TLDHS	Target Location, Designation and Hand-off System
TOA	Total Obligational Authority
TOW	Tube-Launched, Optically-Tracked, Wire-Guided Missile
TPC	Topographic Production Capability
TPCS	Team Portable Communications Intelligence System
TPFDD	Time-Phased Force and Deployment Data
TRANSCOM	Transportation Command
TRAP	Tactical Recovery of Aircraft and Personnel
TRE	Tactical Receive Equipment
TRHS	Tray Ration Heating System
TSS	Target Sight System
TRSS	Tactical Remote Sensor System
TWGSS	Tank Weapon Gunnery Simulator System
TWS	Thermal Weapon Sight
TWSEAS	Tactical Warfare Simulation, Evaluation, & Analysis System
UAV	Unmanned Aerial Vehicle
UB	Unified Build
UHF	Ultra High Frequency
ULCS	Unit Level Circuit Switch
UNMIH	United Nations Mission in Haiti
UNOSOM	United Nations Operations Somalia
UNPROFOR	United Nations Protection Force
USACOM	United States Atlantic Command
USCENTCOM	United States Central Command

USEUCOM	United States European Command
USMC	United States Marine Corps
USPACOM	United States Pacific Command
USSOUTHCOM	United States Southern Command
V/STOL	Vertical/Short Takeoff and Landing
VHF	Very High Frequency
VSW	Very Shallow Water
VVT	Video Teletraining
WAN	Wide Area Network
WHNS	Wartime Host Nation Support
WMD	Weapons of Mass Destruction
WPN	Weapons Procurement, Navy
WTI	Weapons and Tactics Instructor
WWMCCS	Worldwide Military Command and Control System
Y2K	Year 2000

***Published by Headquarters, U.S. Marine Corps
Programs and Resources Department
Washington, D.C. 20380-1775***

<http://www.usmc.mil/c&i>

